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American Aviation

The Independent Voice of American Aeronautics

AUGUST 1, 1943

Air Mail First

Fortnightly Review

THREATENED with invasion and up to its ears in war since the fall of 1939, Australia has never veered from the principle of air mail *first*. No class of passenger or cargo, including military, can remove air mail from any Australian airline.

In the United States air mail is bounced off the airlines right and left. It comes *after* priority passengers, even after most priority express.

Moral: in modern warfare, home front economy and production must not lag. The United States is the only country in the modern world which has failed to recognize the singularly vital fact that home front economy and efficient production machinery is as important as any other phase of fighting war. The breakdown of the air mail system is a symptom of weakness on the home front.

Postwar and Summer Heat

AIRCRAFT manufacturers who had hoped to learn something of the government's plans for disposition of federal-built war plants when peace comes, were sharply rebuffed the other day by a great and embarrassing volume of silence.

As one of its postwar planning activities, the Aeronautical Chamber of Commerce had arranged a large luncheon in one of Washington's finer (and air-cooled) hotels and the invited guests, who were to speak on disposition of war plants, were none other than the Undersecretary of the Navy, James V. Forrestal; the Undersecretary of War, Robert P. Patterson, and Secretary of Commerce Jesse Jones, the latter being

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Returns to American

Ralph S. Damon has resigned as president of Republic Aviation Corp. and will return to American Airlines on Sept. 1 as vice president and general manager. Damon is credited with an outstanding job in getting Republic's P-47 Thunderbolt into quantity production. (Page 18)

Late Bulletins

Planes May Be Released

Prospects are bright for the return of a substantial number of planes to the airlines in the near future, it is said. It is also learned that the Munitions Assignment Committee has just given two to Pan American-Grace and four to Pan American's Mexican subsidiary.

Discusses Surface Lines

L. Welch Pogue, chairman of the Civil Aeronautics Board, said in Los Angeles last week that the present law bans surface carriers from operating airlines and that there are no indications that the law will be changed. Bus, truck, rail and steamship lines have filed applications with CAB totaling 51,329 miles.

Trend of the News

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Contract Termination: Washington is still trying to find a satisfactory solution for termination of war contracts. Latest development is a request from Lincoln Clark, secretary of the Procurement Policy Board, WPB, that all contractors submit their suggestions by Aug. 15. Current termination ideas deal largely with ordnance, tanks and similar items, but will form a basic pattern for termination of aircraft contracts which will come much later. Washington is guessing that no aircraft contracts will be lopped off before next June. Representatives of the industry, however, don't want to be caught in any sudden debacle and are carrying on periodic discussions with government officials.

Wilson Takes a Look: Charles E. Wilson, executive vice chairman of WPB and head of the Aircraft Production Board, with several members of his staff, will tour the West Coast aircraft plants the latter part of August. With Lieut. Gen. Brehon B. Somervell, chief of Army Service Forces, he has been visiting midwest ordnance and other plants. Insiders say Wilson has a good grasp of the aircraft materials problem, and his West Coast trip may produce happy results.

Hopkins Runs the Show: Last March the responsibility for assigning aircraft produced for the war effort was quietly transferred from the Joint Aircraft Committee (chiefly Army and Navy) to the Munitions Assignment Committee of which Harry L. Hopkins, the President's confidante, is chairman. Let there be no doubt that White House boarder Hopkins runs the show. He does. It is Hopkins who handles the diversion of aircraft and especially in the allocating of airplanes to other countries. Recently he gave three Douglas transports to KLM the Royal Dutch Airline. It is Hopkins who does the assigning; his associates on the committee act quickly when the whip is cracked. Of course, *some agency* must be charged with munitions assignment, but there are those who wish it wasn't the mysterious Hopkins.

Standardization: Inside view is that the Army knows what planes it wants to keep coming from the production line, but Gen. H. H. Arnold, questioned repeatedly on his recent tour of West Coast plants, refused to

(Turn to page 6)

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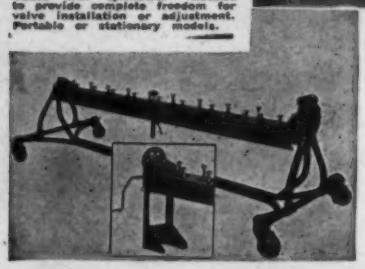

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American Aviation

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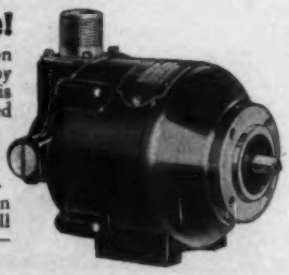

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Trends

(Continued from page 1)

discuss individual airplanes. It is expected to boil down to four fighter models and perhaps six or eight bombers, ranging from the new super-bombers to light bomber-fighters.

Burdening Transportation: Although the Army may not be utilizing its transport planes to the utmost, the manufacturing industry is not lily pure in the present transportation shortage. One large aircraft manufacturer in the midwest recently had a request from a vendor of one small plane part to take care of no less than 53 individuals of the parts company who wanted to visit the aircraft plant. During one 10-day period 15 companies wanted to send a total of 93 persons to the same plant. Obviously the transportation facilities to this particular city would have been burdened without justification. The chief offenders are vendors to the aircraft industry, not the airframe people themselves.

Production Off: The figures aren't in for July yet, but during the month aircraft production has been behind the June figure. On July 15, Acting Secretary of War Patterson said: "In the next six months we must produce 61% of the total number of airplanes scheduled for 1943. In June combat planes were 70% of the total produced, as against 68% in May. The average weight was 7,300 pounds compared to 7,100 in May and 6,100 in January. June production in terms of plane weight was 3% higher than in May.

No Postwar Plan: RFC Chairman Jesse Jones, discussing the postwar disposition of manufacturing facilities, said in a radio broadcast last week: "We (the government) very easily could destroy private investments in the aviation industry, but certainly we should not, and will not." He said the government intended to have a fair attitude in connection with facilities it controls, but as in previous speeches, offered no specific stipulations. His latest figure: RFC has built and owns 521 plants for production of aircraft, engines, parts and accessories at a total cost of $2,700,000,000—10 times the value of privately owned investments in the industry. It has financed construction of 50 plants for manufacture of high octane aviation gasoline, at a cost of $500,000,000 and 20 of them are owned by RFC.

Jouett Happy at Higgins: One man in aviation has his hands full but he's plenty happy in his new job. He's Col. John H. Jouett, who took over Higgins Aircraft and double-between New Orleans and the Bellanca plant at Newcastle, Md., in which Higgins bought an interest. His term as president of the Aeronautical Chamber of Commerce was an experience he wouldn't care to repeat, he tells friends, and he's forgotten all about industry squabbles. He's sold on Higgins, knows Higgins is going places after the war. As for the new plant at New Orleans, it is to be completed this fall for building the Curtiss plywood cargo plane—and the plant is one of the largest in the country. In fact it is impressively huge with an excellent airport adjacent.

Postwar Aircamps: At least one state is active in preparing for the private flying field after the war. The Michigan State Planning Commission has published an attractive booklet entitled "Sky Camps" describing the present and proposed system of landing fields for the private flyer who wants to camp, fish and hunt. The state is establishing a system of "recreational airways" and is already making a strong bid for the postwar sportsman flyer. The plan for aircamps is especially commendable. Copies of the booklet may be obtained from the commission at Lansing, Mich.

Valuable Track: A caterpillar landing gear enabling airplanes to land on rough, soft or sandy ground is announced by Firestone Tire & Rubber Co. It provides the same kind of traction a tank has and engineers foresee its application to cargo carrying into remote spots where there are no airport facilities.

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When he climbed out of the sturdy trainer, he glowed with expansive pride. He was a *flier* now, and gloriously happy.

If you had been there, you'd have seen him give his Boeing Kaydet a friendly pat. For, like all fliers, he feels a real affection for the primary trainer that first lent him wings.

If your son, or brother, or that boy from down the street, is now in the Army or Navy flying services, chances are that he, too, received his first flight instruction in a Boeing designed and built airplane. For more Army and Navy pilots have gotten their initial training in Boeing primary trainers than in any other primary training planes. Boeing has delivered, all told, more than 7000 expertly engineered, soundly constructed Boeing Kaydets to the United Nations.

Boeing Kaydets are built at Boeing's plant in Wichita, Kansas. Not as spectacular as their big brothers, the Flying Fortresses," they are, nonetheless, built to the same unyielding standards of design, engineering and manufacture.

Boeing products have always exceeded the claims advanced for them. True of airplanes today, it will be true of many a peacetime product tomorrow . . . if it's "Built by Boeing" it's bound to be good.

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"THE TERMS "FLYING FORTRESS" AND "STRATOLINER" ARE REGISTERED BOEING TRADE-MARKS

Editorial

(Continued from Page 1)

the owner of most of the great aggregation of plants on behalf of the government.

Mr. Forrestal led off with a grim talk on winning the war first, and settling internal domestic problems when the war is won. Mr. Patterson described the Sicilian invasion, about which everyone had already read in the newspapers, praised the role of aircraft in the war, and assured his listeners the management of the war was in good hands. Mr. Jones sent a substitute speaker who gave several reasons why disposition of plants couldn't be discussed because we have a war to win. The several hundred aircraft manufacturers, who had been expectantly awaiting momentous and inside words from the high chiefs of government, were bewildered, let-down, disillusioned. The word *postwar* just didn't exist.

The rebuff was quite obvious, as if to say to the manufacturers: "What in hell are you doing in Washington? Why aren't you at your plants building airplanes? What in the name of heaven are you thinking about to come here in the midst of war and ask about the use of plants after the war?" It was, perhaps, just about the most embarrassing kick in the pants the industry has ever had. The industry was being spanked.

Just what was behind it all? First of all, it was a lesson in timing. A hot summer's day at the start of the European invasion was hardly an appropriate time to talk postwar matters to anyone in the War Department who has anything to do with the tremendous task of fighting a global war. Secondly, the industry will have to rely on itself for the primary postwar answers and not come to Washington with its problems expecting to find ready-made cures and suggestions.

It is a curious phenomenon of the times that industry is shouting against government encroachment on private enterprise, and then comes to sit at the feet of government seeking ready-made answers. The time of governmental benevolence is rapidly coming to a close. War contracts will be among the last phases of dishing out of federal funds in the grand manner, for reaction is setting in fast. For some years the answers, such as they were, *have* been in Washington, but the time is approaching when the answers must be found in leadership of private industry—a leadership that will demand and get what it wants from the people.

It is a natural question for aircraft manufacturers to ask—this question about disposition of plants after the war. Messrs. Forrestal and Patterson need not have gone so far out of their way to rebuff the industry; they might have bent over to talk sensibly about today's and tomorrow's problems. But in the final analysis Messrs. Forrestal and Patterson came to Washington to do a *war* job. When hostilities cease, they will quietly fold their tents and return to their peacetime pursuits in New York and others will have to wrestle with the postwar headaches.

The government owns most of the aircraft plant facilities of the nation, either through the War Department or the Defense Plant Corporation. Why shouldn't the manufacturers have a right to ask what is to become of these plants? The chances are very great that the government itself doesn't know, and the plans of one administration may be turned upside down by the next. In the final analysis, it will be private industry that will have to work up plans to use those plants, and to seek public support to put those plans in execution.

The Aeronautical Chamber of Commerce is to be commended for its initiative and enterprise in studying postwar problems. It did not deserve the rebuke from the three government officials. Modern warfare demands that the home economy be kept intact and protected, for this is no ancient war of sending an army out on a single battlefield to win a victory for honor. This is an economic war in which fighting is only one phase, important and vital as that one phase may be. No, when hostilities cease, industry must expect to hit rock bottom, to pull itself out through its own enterprise.

A Backhanded Thanks

ON THE WHOLE the Truman investigating committee has done a creditable job for the purposes it set out to accomplish. That is to say a Congressional muckraking and investigating committee is to be expected as inevitable in wartime, and, for such a committee, the Truman group has been far above par.

That is, it has been above par until it pounced on Curtiss-Wright Corp. A great corporation which has contributed enormously to the war effort, and whose engines, propellers, and airplanes have been of proven quality for many years, has been dragged through the mud of a frontal attack. As to the specific charges against the company, we are not in a position to know the real facts, but we can bet that they are not as bad as the Truman committee indicated. The public inference in such a report is always that the victim company has maliciously, and with deliberate intent, cheated the government. Certainly this much is not true. At this stage of the war it was very ill-timed and ill-advised for any such charges to be made.

We are afraid the Truman report is but the first of a series. Every Congressional committee must justify its continued existence, and the favorite method is to find a whipping post. Curtiss-Wright didn't ask for all the headaches of expansion it undertook. Like every other aircraft company it had no choice but to follow orders in the interest of winning the war. It did not deserve the coast-to-coast beating it has taken and we are glad to see the company defending itself.

A Good Activity

FOR some months the National Aeronautic Association has been holding one breakfast a month to which Congressmen and aviation people in Washington are invited. There are no speeches, there is no selling of ideas, no axes to grind. It is merely a regular get-together to meet people informally, and it is a chance for Congressmen to meet and talk with the people of aviation. Here is a very worthy activity of NAA in the nation's capital.

WAYNE W. PARRISH

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Books

THE STRUGGLE FOR AIRWAYS IN LATIN AMERICA. *By William A. M. Burden. 244 pages. Illustrated. Maps. Council on Foreign Relations, 45 East 65th Street, New York. $5.00.*

Few books on aviation subjects have been as attractively published as this monumental job. And few have been as packed with statistics, data and basic information. Every aeronautical—and every other type—library should certainly have this book. It was launched under sponsorship of the Coordinator of Inter-American Affairs while Mr. Burden was a vice president of the Defense Supplies Corp. A great many qualified persons have contributed to its subject matter. Some of the material had previously been quoted from the original manuscript by *American Aviation.*

Mr. Burden has presented a thorough picture of air transport development in Latin America and weaves this into an economic, social and political story of the same period. His predictions reflect great optimism for postwar aviation expansion throughout the Americas. Especially appealing are the many valuable maps, while the statistics are of the caliber not often available in these days. It is an exceptionally good job and a valuable contribution to aviation.

AIR TRANSPORT NAVIGATION *By P. H. Redpath and James M. Coburn. Pitman Publishing Corp., New York. $5.00. 612 pp.*

Seldom does a reviewer have the good fortune to come up on a book which causes him to exclaim "This is the book for which I have long been waiting." The writer predicts that *Air Transport Navigation* will bring about a similar reaction to every private and commercial pilot as well as to novice and professional navigators as well. Truly Messrs. Redpath and Coburn's book is a must for everyone who makes even the slightest pretense of being interested in the navigation of aircraft by dead-reckoning and radio.

Four features render this book different from the usual works on navigation. First the authors' approach is completely original; apparently they made no effort to consult various navigation texts for fear of coming out with a mere rehash of an old subject. Second, despite the book's length (612 pages), the authors have maintained an easy going and humorous conversational style throughout. Completely absent is the dry and formal approach of the conventional text. Third, the illustrations represent a revolutionary departure from the threadbare line diagrams generally found in works of this sort. By the use of ludicrous little characters performing ridiculously exaggerated maneuvers against an equally preposterous background the illustrator forcibly drives home the points brought out in the text. In fact if the reader bites off more of the text than he can chew at one time he may find relaxation by just leafing through the illustrations for a few good chuckles. The authors were fortunate in securing the services of E. J. Schuett whose brilliant though somewhat warped sense of humor in illustrations serves as a fine foil for some of the more complex diagrams. The fourth outstanding feature of the book is its emphasis on radio navigation. Radio is covered so thoroughly that certain equipment and methods are described which may not be in general use until the postwar period.

Beginning with a chapter on early methods of navigation the book progresses with chapters on Airways; Aeronautical Charts; Compasses; Air Navigation Instruments; Course Plotting, Course Conversion and Simple Bearings; Determination of Groundspeed and Fuel Consumption; Wind and Its Influence on the Navigation of Aircraft; Aircraft Radius of Action and Simple Interception; Navigational Dead-Reckoning Computations; Flight Planning, Flight Logs, Scheduling; Radio Aids to Air Transport Operation; Radio Range Flying; Instrument Approach Procedures; Radio-Range Orientation; Airplane Direction-Finding Equipment; Simple Homing and D/F Calibration; Direction Finding (D/F); Link Trainer; Instrument Landing; Ultra-high-Frequency Radio Ranges; Routing Navigation Practice: Airline Flight Dispatching; Heavens Above; and an Appendix.

As the chapter headings indicate, the book was begun for airline pilots alone. However, the authors enlarged the scope of their work and by painstaking attention to simplicity of explanation from the most elementary to most complex problems have evolved a book which should prove indispensible to amateur and professional alike.

Other than a brief chapter on the principles involved, celestial navigation is not treated in this book. Obviously, to have included celestial navigation would have made the manuscript unduly cumbersome. Redpath with his inimitable illustrator, Schuett, is working on a book which will deal solely with celestial navigation. Redpath, who is Chief Navigator for the Intercontinental Division of Transcontinental and Western Air, Inc., is without a peer in this field.

—F. A. Spencer.

AN AERONAUTICAL REFERENCE LIBRARY. *Compiled by Willard Kelso Dennis, librarian, Parks Air College, Inc., East St. Louis, Ill. Published by Special Libraries Association, 31 East 10th St., New York, N. Y. $1.00.*

Assisted by librarians of various aviation companies, Mr. Kelso has performed a worthy service in compiling this selected list of technical books essential to an aeronautical library. Not only are all purely technical subjects covered, but Mr. Kelso has included airports, military aeronautics, history, law and regulation, medicine, bibliography, dictionaries and reference handbooks and directories. Parks Air College is to be commended for permitting Mr. Kelso to devote his time to this endeavor and all aviation companies as well as all specialized libraries should be duly grateful.

NEW HORIZONS IN INTERNATIONAL AIR TRANSPORT. *By Howard P. Whidden, Jr. A Foreign Policy Report, Foreign Policy Association, Inc., 22 East 38 Street, New York 16, N. Y. $0.25.*

Mr. Whidden has done a creditable job of summarizing the international air transport situation. He avoids very successfully a pitfall of so many serious treatises designed for the layman in that he does not get himself all tangled up in the complex subject of international law, treaties, agreements, etc. Yet he sticks to the facts. His conclusions and predictions of things to come are sensible, neither at one extreme or the other. It's a very useful 10-page pamphlet, available at a quarter for a single copy, or 10 copies for $2.00, 50 for $7.00, and 100 for $12.00. Large companies might well be interested in bulk orders for employes.

THE STORY OF FLYING. *By Archibald Black. 270 pp. Illustrated. Whittlesey House, New York. $2.50.*

This is a new edition of a rather complete, but undramatic, story of flight from the beginning. Like all such books, it starts with Daedalus and Icarus and Leonardo da Vinci. Unlike most such books, it covers more ground and more broad phases of aviation. At the same time, it tells a little about everything and not much about anything in particular. It is straight, plain, factual writing, which, for a standard work of this sort, has its advantages. The new edition brings the story of flight up into World War II and a vision of what is to come tomorrow. To the newcomer in aviation it is a creditable job, a good starting point. To those in aviation, it will seem very routine.

WAR WINGS FOR CAROL, *by Patricia O'Malley; Dodd, Mead & Co., New York; 270 pages; $2.00.*

Miss O'Malley, who is manager of the public information department of Transcontinental & Western Air, Inc., in Washington, D. C., has woven this story largely around her personal experiences. Her heroine, however, is assistant to the vice president of an airline rather than a P.A. The story takes you behind the scenes of airline operations under wartime conditions. Carol is constantly under wartime emergency pressure, just as the personable "Pat" O'Malley is today in real life. The author has been associated with aviation for 18 years, both with airlines and the Civil Aeronautics Administration. She is the author of "Wings for Carol" and "Wider Wings."

PARATROOPS, *by Major F. O. Miksche; Random House, New York; 237 pages; illustrated with maps; $2.50.*

Events have moved too rapidly for the author to introduce the latest airborne episodes of World War II. The historical part of this book ends with the Battle of Crete, so Maj. Miksche is sadly mistaken when he observes, in the preface, that "we have a lot to learn from the enemy." However, he discusses questions relating to the tactics of airborne troops (glider troops as well as parachutists) in a thorough manner, and he puts before the reader a logical plan which will serve as a starting point for further discussion and argument. Maj. Miksche, who was a staff officer of the Czechoslovakian Army and is now attached to the Fighting French, paints a rosy picture of the future of airborne attack without overstepping the boundary between reality and fantasy.

Letters

Hartford, Conn.
July 7, 1943.

Subject: Your article "Senate Group Studies Air Forces Accidents" on Page 36 of June 15, 1943 issue of *American Aviation.*

Gentlemen:

I had brought to my attention today the article "Senate Group Studies Air Forces Accidents" appearing on page 36 of your June 15, 1943 issue of *American Aviation.* This subject is of interest to me, particularly the second paragraph where Reynolds (D., N. C.) states that the sub-committee launched its air crash study after receiving a "fantastic" report, etc., ending up with the statement that the letter was from an unidentified writer.

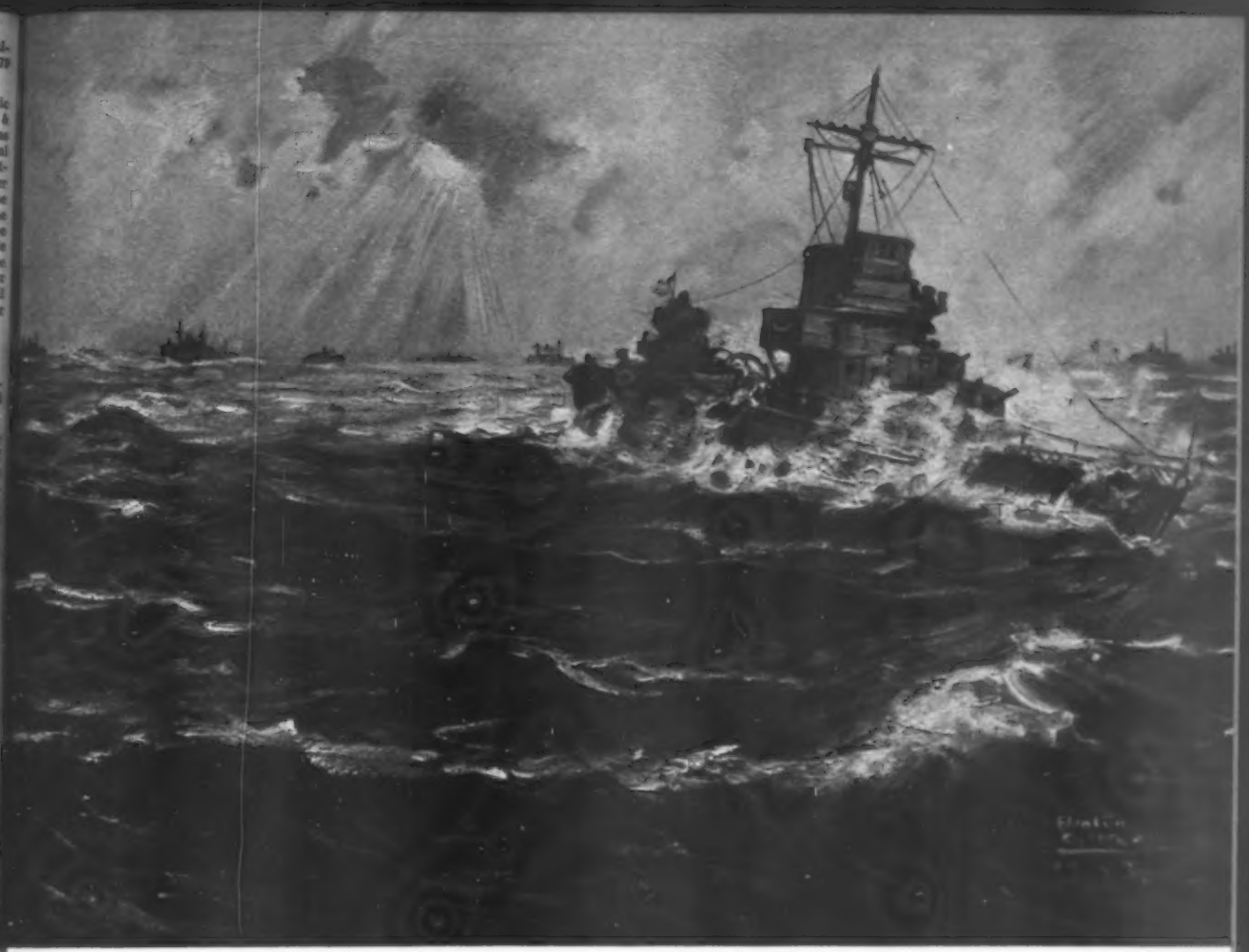
I take exception to this paragraph as I am the "unidentified writer" and my information was forwarded to senators from Connecticut, over my name. Senator Danaher took enough interest to present the situation to the Senate Military Affairs Committee, and I would like to see a correction published in your magazine to the effect that the letter did not come from an unidentified writer and further, that the information contained in my letter was not wholly fantastic.

As to the 31%, this may have been slightly incorrect, as I failed to take into consideration the number of enlisted men in training on these planes which crashed, but only considered some 150 officers who were actually receiving flying instructions during that period.

For your information I am attaching photostatic copies of all correspondence which I had with Senator Danaher on the subject, and I think you will find the contents rather interesting. At least Senator Danaher did everything he could to try to correct a very bad situation, and I feel that he is due considerable praise in this particular case.

My principal reason in writing you regarding this article is that I object seriously to be classed with the unidentified writers who flood the mails with complaints but refuse to stand behind them.

Very truly yours,
Melville L. Merrill,
Lt. Col. Ordnance Reserve.



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This is just one of the many contributions to America's war effort which *E·L* research and specialized knowledge of vibrator power supplies and electronic circuits has made possible. You'll find *E·L* Vibrator Power Supplies on the job in all types of service, and on every front where the United Nations are fighting.

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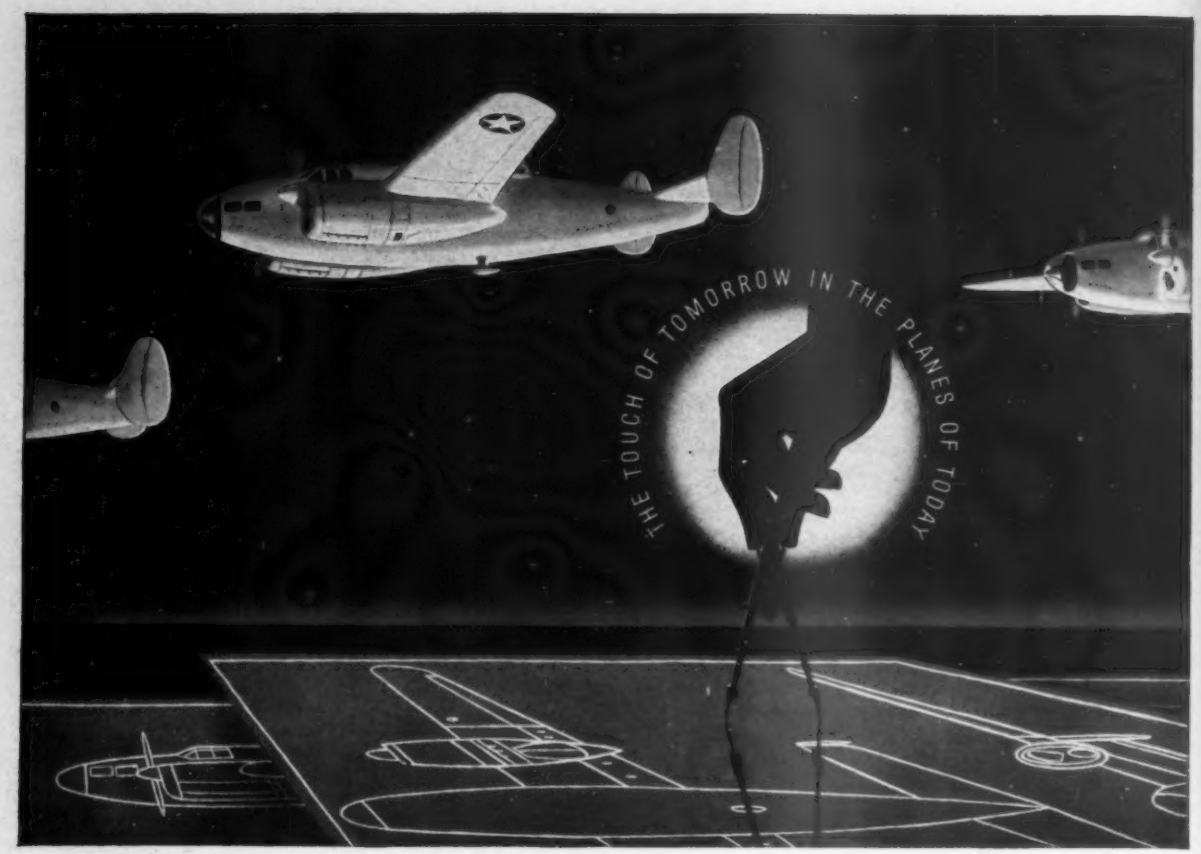

From Plans to Planes at Wartime Speed

Victory won't wait. It needs planes of all kinds at wartime speed. Day by day, the planes Fairchild is building are being produced 'just a little faster.'

When war broke out, Fairchild called in scores of sub-contractors in order to compress a month's ordinary production of parts into a day. A record for assembling the tools and putting men to work—as attested by the Army-Navy "E" flying over its plants today.

Production shortcuts clip minutes from hours . . . and put planes into pilot hands just that much sooner. No time to wait for a stretching die made of steel. Fairchild makes it of wood, saving much time, much steel. Special machines are designed for complicated forming operations once thought impossible to execute except by hand . . . and highly skilled mechanics are thereby freed to join the production battle at another spot. A machine is built that cuts down milling time on one part by 500 per cent. Still another machine is built which shapes a fitting so ingeniously that many hours-per-plane are saved in its installation.

And so it goes—a minute clipped here, an hour there. Time-saving ideas from Fairchild employees have helped put more than one additional pilot over Rabaul, Tunis, Hamburg.

Faster and faster roll the planes from Fairchild production lines. They must roll still faster . . . and they shall. For production, as well as performance, is behind "the touch of tomorrow in the planes of today."

"ON THE BEAM"

"The independence and liberty you possess are the work of joint councils and joint efforts, of common dangers, sufferings, and successes."

—Geo. Washington's Farewell Address

Buy U. S. War Bonds and Stamps!

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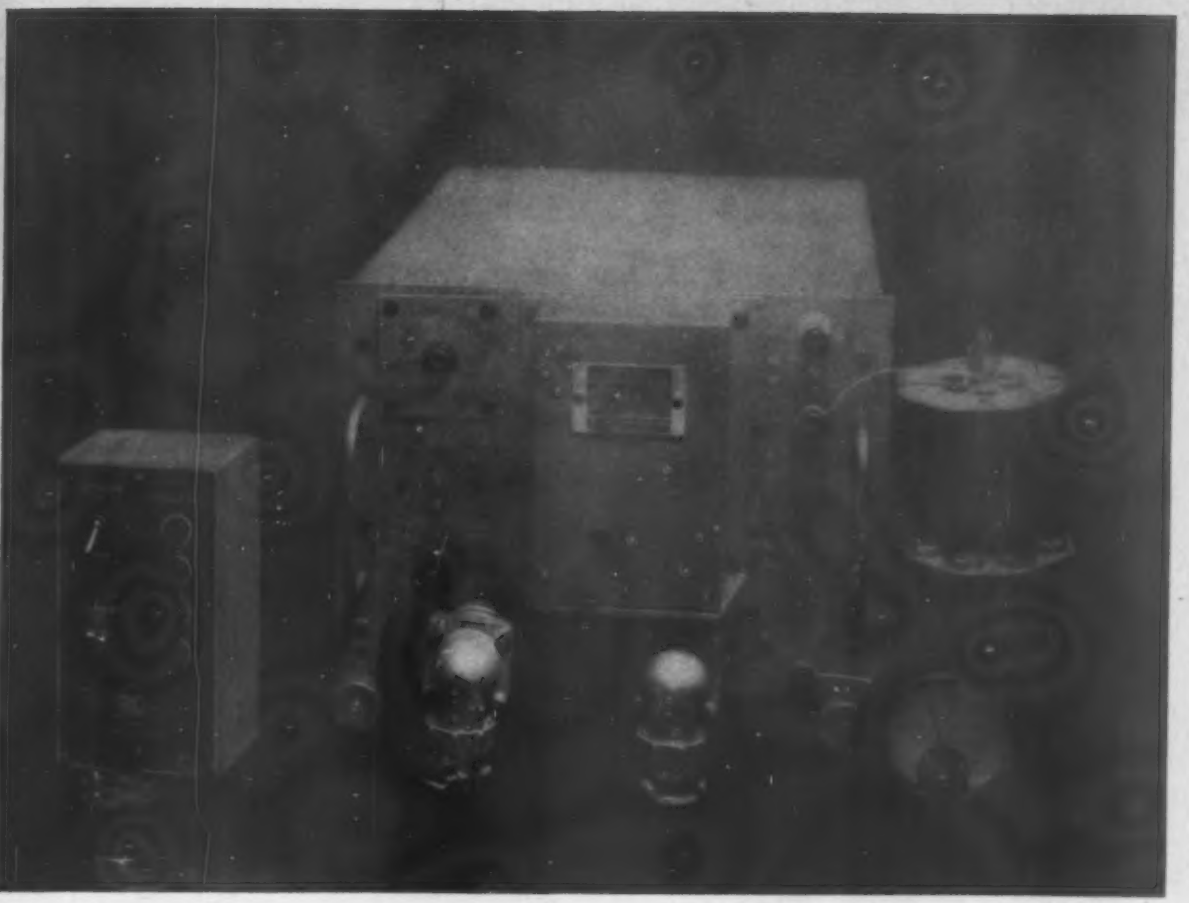

READY FOR THE "GREEN HELL"

HEAT-LADEN moisture is a deadly enemy of electrical installations—and aircraft radio equipment is no exception.

Yet the radio apparatus of America's fighting planes and bombers *must* function perfectly in landing fields and dispersal areas hacked from the "green hell" of Pacific jungles.

The ability of RCA aircraft radio units to meet these conditions is proved by test—and confirmed in service.

The picture above shows such a test—an RCA laboratory "sweat-room" in which RCA aviation radio equipment is exposed to steam-saturated atmosphere at 60° C. (140° F.) and 95% humidity.

There the equipment is prepared for the ordeal of rain-drenched Guadalcanal or New Guinea.

Such procedures are typical of RCA radio engineering and manufacturing. At every step theory is supplemented by severe and exhaustive tests to make sure that *stamina* accompanies efficiency.

These characteristics, essential to war planes, will be equally valued for postwar transports. Then, as now, efficiency and stamina will be "built-in" qualities of RCA Aviation Radio.

RCA

RCA AVIATION RADIO

RCA VICTOR DIVISION · RADIO CORPORATION OF AMERICA · CAMDEN, N. J.

This advertisement is one of a series which will appear in national magazines and newspapers this year as Consolidated's contribution toward a clearer public understanding of "aviation geography."

Approximate flying time shown is based on a speed of 200 m.p.h. from Kansas City, Mo.

CONSOLIDATED VULTEE AIRCRAFT

Try to Find a Spot that's more than 60 Hours from Your Local Airport!

No matter where you look on a globe today, you won't find a spot *anywhere* that can't be reached in 60 hours' flying time from your local airport!

Perhaps you hadn't realized that the world had become so small. Many Americans didn't . . . until it was almost too late.

They thought of the earth in terms of vast distances and natural protective barriers. They believed that a country "isolated" by two oceans thousands of miles wide, had little to fear.

We had made the mistake of looking at maps in terms of *rowboat* geography. We learned our mistake when the Axis took our own invention, the airplane, and taught us the grim fundamentals of *aviation* geography – first over Britain, then at Crete, and finally at Pearl Harbor.

Now we know that to win this global war and build a lasting peace, we must revise our geographical thinking. We are looking at our maps more intelligently, and we are drawing *new* maps which show us global geography more clearly. These new maps have shadows on them, cast by wings. And they show us the world as it really is, because of the plane – a clustering of Air-age nations which must forever more be close friends or close enemies.

To survive as a nation and to live in peace in such a world, we must completely understand the simple and important truths which our new maps so plainly tell us. This means we must *restudy* geography.

For only then can we fully understand why supremacy in the air is a "must" for America, both for winning the war and for securing the peace that will follow.

Polar azimuthal equidistant projection

On a global projection *of the earth, we see the nations in their true relationship. Alaska (A) is merely a way station on the route to Chungking (B) – and Greenland (C) an easy stopover on the flight to Moscow (D).*

Orthographic projection

No longer *can we think of Europe, Russia, or even China as remote bodies of land on "the other side" of the world.*

One day last year, *a Liberator bomber flew to London in 400 minutes. On that day, the Atlantic was no longer an ocean, but a millpond. Even this amazing record was beaten several weeks ago when another Liberator hopped across the "pond" in 372 minutes!*

QUICK FACTS FOR AIR-MINDED READERS

Planes designed and built by Consolidated Vultee cover the entire range, from military basic trainers and light observation planes to the largest long-range bombers and transport planes.

• • •

The Consolidated Vultee Liberator bomber has the greatest speed, bomb capacity, and flying range of any American 4-engine bomber now in mass production. It has a range of 4000 miles and a service ceiling of 35,000 feet.

• • •

When Anthony Eden visited the U. S. recently, he flew over from London in the "Commando" – the same Liberator bomber in which Winston Churchill flew to Moscow and, later, to Casablanca and Turkey.

• • •

FREE: Consolidated Vultee is eager to make whatever contribution it can toward a clearer understanding of today's new global geography.

The well-known cartographer, Richard Edes Harrison, has worked with us in the preparation of a 32-page booklet entitled "MAPS–and how to understand them." This booklet is now available and will gladly be sent free on request. Simply fill out the coupon below.

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6,000 experts keep Lockheeds in trim!

WHEREVER there is a Lockheed *working* or *fighting*—there is a trained specialist nearby to keep it at its peak operating efficiency. 6,000 experts, trained by Lockheed, paid by Lockheed, are now scattered throughout the world testing, checking, repairing, even rebuilding the thousands of Lockheeds so active now in commerce and in war.

Huge repair bases dot three continents, equipped and capable of any job. Hundreds of Lockheed field service representatives are on fighting fronts, helping Army, Navy and R. A. F. repair crews get the planes back into the fight. Others are studying technical problems of operation and maintenance that may improve design or make upkeep easier.

Lockheed is investing time, effort and energy to build a service system—unexcelled. For by keeping dependable planes in dependable operation we will speed Victory and pave the way for the day when every Lockheed owner may fly where he pleases on the world's airways with confidence and surety.

LOOK TO *Lockheed* FOR LEADERSHIP

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American Aviation

16 Lines Adopt Broad Postwar Air Policy

Will Seek Worldwide Routes; Pan Am and Export Are Unsigned

By ERIC BRAMLEY

AGREEING on a five-point declaration of policy, with worldwide "free and open competition" as its cornerstone, 16 of the nation's domestic airlines revealed publicly on July 15 that they intend to file applications with the Civil Aeronautics Board covering routes to all parts of the globe.

At what was probably the largest press conference ever held by the industry, the 16 lines called for prompt action in determining a national air policy and announced agreement on the following principles:

1. "Free and open competition—worldwide—subject to reasonable regulation by the appropriate governmental agencies.
2. "Private ownership and management.
3. "Fostering and encouraging by the government of the United States of a sound worldwide air transportation system.
4. "Freedom of transit in peaceful flight-worldwide.
5. "Acquisition of civil and commercial outlets required in the public interest."

In early July, Gen. H. H. Arnold, commanding general of the Army Air Forces, called airline presidents to Washington, assured them that Air Transport Command facilities will be turned over to commercial operators after the war, and allayed suspicions on the part of the airlines that ATC would operate a postwar government airline.

Shortly thereafter, the presidents began day and night sessions on postwar policy, which culminated in the July 15 announcement.

Signing the policy were American Airlines, All American, Braniff, Chicago & Southern, Colonial, Continental, Delta, Eastern, Inland, Mid-Continent, National, Northeast, Northwest, Pennsylvania-Central, TWA and Western.

The Air Transport Association was not represented at the press conference.

That there was not unanimity of thought between *all* airlines became evident when it was revealed that United Air Lines was not a signatory and that Pan American Airways and American Export had not expressed opinions.

United had been willing to sign the policy provided it was "strictly understood that nothing therein would preclude it from giving serious consideration to jointly financed and operated routes if it should be found that the best interests of our country can be served by such cooperative effort," W. A. Patterson, UAL president, announced. UAL had first suggested that such phrasing be written into the airlines' statement, or that United be permitted to sign upon such condition, but neither was acceptable to the signatories, he said.

(It was learned on July 26, however, that United had decided to sign the agreement).

United by its early stand thus indicated at least some support for advocates of a single postwar U. S. airline company, broken down into autonomous operating divisions serving various parts of the world. In some quarters the feeling persists that such a company would receive

(Turn to page 36)

American Aviation Photo.

Explains Policy: Samuel J. Solomon (standing), president of Northeast Airlines, is shown as he explained the airlines' international policy to the press. Seated at the table, left to right, are Paul Brattain, vice president of Eastern; Jack Frye, TWA president, and Croil Hunter, president of Northwest. Behind Brattain is Jack Nichols, TWA vice president.

Senate Group Asks to Be Consulted on Postwar Air Plans

Coincident with President Roosevelt's statement last fortnight that he is actively considering postwar international aviation plans, it was revealed that the aviation subcommittee of the Senate Commerce Committee has launched its own study of the problem and has received assurances that Congress will be consulted before any commitments are made by this government.

Sen. Bennett C. Clark (D., Mo.) chairman of the subcommittee, visited both President Roosevelt and Secretary of State Hull, and reported that the Interdepartmental Committee, headed by Assistant Secretary of State Adolph A. Berle Jr., will consult with the subcommittee before making any decisions.

In order to work out a broad, general aviation policy, Sen. Clark said that his group is studying "with an absolutely open mind" the following alternatives: (1) full government ownership and operation, (2) government control through majority stock interest, (3) subsidized operation over allocated trade routes, similar to the ship subsidy program, and (4) privately owned competitive operations. Public hearings will be held in the fall.

It was also learned last fortnight that the Interdepartmental Committee on International Civil Aviation had completed its report, which presumably is now at the White House. In general, it is said to advocate no government ownership, no monopoly, freedom of transit, the government as the bargaining agent, and competition. One dissent advocated a single super-airline company, broken down into autonomous operating divisions.

Highlights of Truman Aviation Report

Praise and Censure For Industry Given By Senate 'Probers'

By KATHERINE E. JOHNSEN

ACKNOWLEDGING the airplane as "the most important single weapon in the present war" and that the U. S. has "succeeded in building an air industry . . . which our foes cannot hope to equal," the Truman Committee's recent report both criticized and commended various phases of the nation's vast aircraft program.

Criticism should not be "misconstrued as a condemnation . . . of a program which as a whole has been unequalled anywhere else in the world," the report emphasized, but maintained:

"However, we should not judge our efficiency simply by comparison with what others have done, but should also take into consideration what could have been accomplished by full and efficient use of the nation's vast industrial and technical resources. In a great many instances we could have done much better than we have . . . Perfection must not be expected in war (however), where it is better to use wasteful methods than to risk having too little."

The 30-page report which hit the front pages of the country's newspapers, included detailed remarks on Army and Navy type planes; commented at great length on the alleged unsatisfactory performances of the Curtiss-Wright Corp.; questioned the strategic value of dive bombers and the wisdom of the Navy's decision to continue procuring them on a large scale; indicated a promising future for gliders in the war; reviewed the past and suggested several important functions that may be accomplished in the war by the helicopter and dealt severely with the Navy for its reluctance in developing and admitting the usefulness of the helicopter.

Following, *American Aviation* summarizes the contents of the Truman report. All comments and conclusions are those of the Committee and not of *American Aviation*.

Planes are to be the greatest determining factor of the future course of the war. Air superiority enabled Germany to overcome British naval superiority in the conquest of Crete. The lack of air superiority, which cost Germany North Africa, will ultimately cost it the war.

Our enemies have not yet felt the full weight of our airpower. A prime reason for this is the necessary time lag between the production of a plane at the factory and the actual use of the plane at the front. This has caused a great disparity between the number of planes produced and the number actually in operation at the front. The coming months will bring an "ever-increasing flood of destruction."

Army and Navy are going to abandon certain plane models and concentrate production on the models which have proved their worth, they have assured the Committee at private hearings. Such a policy of standardization

(Turn to page 66)

Guy Vaughan Calls Committee Charges False, Unjustified

GUY W. VAUGHAN, president of Curtiss-Wright Corp., has made the following statement defending his corporation against charges made in the Truman report:

"The only way to judge the merit of a military airplane, engine or propeller is the way it performs in actual combat. By that yardstick, Curtiss-Wright management and employes feel that the performance of their equipment speaks for itself, and that they are making an outstanding contribution to the winning of the war.

Vaughan

"At the start of hostilities, Curtiss-Wright employed a total of approximately 8,000 employes. Today we employ approximately 180,000. Shipments for the war effort have increased more than 25 times between 1938 and 1942. We did not seek this expansion but undertook it at the request of the Government and as a patriotic duty.

"It is inevitable in such a gigantic effort that some mistakes have been made, but they have in no way affected the finished products which have been flowing in such vast quantities from our production lines to our fighting forces on the various battle fronts.

(Turn to page 72)

Curtiss-Wright Is Heavily Criticized In Lengthy Report

DISAPPOINTMENT at "the overall performance of the Curtiss-Wright Corp." was expressed in the Truman report, which, in seeming contradiction nevertheless, conceded "that the corporation's performance taken as a whole has been creditable" and that Curtiss-Wright "engines, airplanes and propellers, although not always of the best, have been usable and have been of great value at the fighting fronts."

Curtiss-Wright's P-40, "Warhawk", was called "at best a second choice plane" by the Committee. Production progress at Curtiss-Wright Columbus, Ohio, plant on the SB2C, "Helldiver", was labelled "most unsatisfactory." Conditions existing at the Lockland, Ohio, plant of Wright Aeronautical Corp. (a fully-owned subsidiary of Curtiss-Wright)—from which, it was alleged, defective engines have been shipped—were criticized by the Committee. The report charged the corporation with "gross negligence in not ascertaining and correcting the inspection difficulties at the Lockland engine plant, despite the fact that it knew that the safety of pilots and crews of aircraft were dependent thereon."

The Army has decided to discontinue all production of fighters, except for replacements and trainers, and most of the dive bombers now produced by Curtiss-Wright and have it concentrate primarily on its C-46, "Commando", cargo plane which has proved satisfactory, according to the report.

(Turn to page 68)

Suits Filed Against Officials of C-W; Martin Replies to Criticism of 'Mars'

Civil suit to reclaim damages from high officials of the Curtiss-Wright Corp. was instituted by U. S. attorneys in Trenton, N. J., and Cincinnati, Ohio, following publication of the Truman report.

Other repercussions to the report were:

(1) A public statement by Myron B. Gordon, vice president and general manager of Wright Aeronautical Corp., declaring the firm was prepared to fight "to the finish" allegations that defective and substandard materials were used in engines turned out at the Lockland plant.

(2) A pubic statement by Undersecretary of War Robert Patterson maintaining that "failures in the engines delivered from the Lockland plant have not exceeded normal experience with engines in combat planes" and that "no instance was found where any engines known to be defective were ever placed in service."

(3) A statement from Glenn L. Martin objecting in particular to the Committee's observations on the "Mars".

(4) A telegram from Assistant Secretary of the Navy Artemus Gates to Guy W. Vaughan declaring that the Navy is going ahead with its SB2C "Helldiver" program. (The Truman report announced that the Navy intended to cut down production at Columbus, Ohio).

Executives of Curtiss-Wright named as co-defendants with the corporation in the civil suit filed were: G. W. Vaughan, president and chairman of the board of directors; M. B. Gordon, vice president; Arthur McNutt, vice president; G. F. Chapline, vice president; C. C. King, treasurer; E. S. Kramer, secretary; J. H. Darragh, assistant secretary and treasurer.

For the purpose of enabling the Wright Aeronautical Corp. to collect from the U. S. for "defective and substandard materials which were not in accordance with the requirements and specifications of the contracts under which the same were produced," the complaints asserted,

(Turn to page 72)

Aviation Industry Is Shy Toward Congress—Hinshaw

By CLIFFORD GUEST

THE aviation industry must rid itself of a long-standing aversion toward taking its problems to Congress and must keep the lawmakers fully informed of all the facts essential to its operation if adequate legislation is to be obtained.

This challenge was aimed squarely at both the transportation and manufacturing fields by Rep. Carl Hinshaw (R., Cal.) in an exclusive interview with *American Aviation*, as Congress took its summer recess. Surveying the prospects for action on important aviation legislation when Congress returns in the fall, Hinshaw declared it is imperative that the individual legislators be furnished basic and thorough information on which to base their judgment of the problems involved.

Hinshaw

As a member of the House Committee on Interstate and Foreign Commerce and its aviation subcommittee, Hinshaw is one of the most authoritative voices at the Capitol in connection with aviation legislation. His district contains one of the biggest airframe manufacturing plants and the terminal of one of the biggest airlines.

"Congressmen are entitled to every bit of information available about the industry," he declared. "It is still a new industry, with many new implications, about which there is much to learn."

He said that obviously the reluctance of the industry about "going to Congress" was to avoid any semblance of lobbying.

"But Congress doesn't look at it that way," he said. "Every congressman ought to have all the facts and figures he can get. Congress will welcome it."

No other great industry has been shy about telling its needs to Congress, he added. "Certainly the other transportation agencies haven't been shy about it. Neither have the employe organizations, the farm organizations, or the old established manufacturing organizations. After all, a congressman is supposed to represent his district in Washington. How can he do it adequately if he is not fully informed by those who have the information?"

Hinshaw said the legislators themselves would concede that a great many of them are unfamiliar with aviation and its needs, and what constitutes valid and adequate regulation.

"There is still a great lack of knowledge in Congress about what makes an airline tick," he said. "But there is less ignorance in the 78th Congress than formerly, partly because a lot of younger men have come in."

Hinshaw did not advocate that the industry go in for lobbying in the accepted sense, with an organization in Washington and "inspired" campaigns. Instead, he urged the industry to take advantage of the present congressional recess and go to congressmen and senators in their home districts to acquaint them with basic facts about airline and manufacturing operations, "right at home where such facts mean the most to them."

"Get them acquainted with your shops and facilities and employes," he suggested, "and with what you are doing and want to do. Don't just take them on an inspection of the airport, or get the city council to pass a resolution.

"They ought to have the figures on passengers, on and off mail, and a real understanding of what air transportation means in the saving of time for people with business to do elsewhere. Let them see the economic advantages aviation can bring to their own districts—because that is where their real interests lie.

"Discuss with them the postwar benefits to accrue from air trade and travel. Let them see clearly how much of the future of aviation lies in the hands of Congress.

(Turn to page 51)

New UAL Director

Paul G. Hoffman, president of the Studebaker Corp., recently was elected to the board of directors of United Air Lines Transport Corp. He has been associated with Studebaker for 32 years, and has been president since 1935. United says Hoffman's election to its board 'is recognition of the present close affiliation between the automotive and aviation fields.'

Preparing

Probably remembering what happened in the last war when all war contracts were cancelled at the cessation of hostilities, one large aviation company has just appointed a Director of Cancellations. His whole job is handling cancelled and adjusted contracts. "All you birds will be working for me one of these days," he joshingly told his company associates.

Chambers Resigns RDC Aviation Post; Studebaker Upped

Reed M. Chambers last week resigned as director of aviation activities of the Rubber Development Corp. after putting into successful operation the aviation program around which the entire effort of the government to bring supplies of wild rubber out of the Amazon basin revolves. Chambers has returned to New York to devote full time to his duties as president-treasurer of U. S. Aviation Underwriters, Inc.

Selection of Ford Studebaker, formerly Chambers' assistant, to take charge of the aviation activities was announced by Douglas Allen, president of Rubber Development Corp. Studebaker, who formerly was with American Export Airlines, also was made a vice president of the rubber corporation. He left shortly afterward for Brazil and will establish headquarters at Manaos.

Allen said Chambers had been recalled to his aviation business by the board of directors. He highly praised the work done by Chambers in organizing aviation facilities which took workers, supplies, equipment, medicine and food into the wild rubber-producing areas of the Amazon, and started an outward flow of rubber. The program was approved June 26, 1942, and Chambers had the first plane in operation Sept. 13.

Chambers had full charge of procuring aircraft, selection of personnel, installation of wireless and weather reporting facilities, working out operating agreements and making contracts with Panair do Brazil, Pan American and Fawcett lines, which are doing contract flying for Rubber Development Corp.

He obtained planes which are operated by, or for, the corporation itself, and Allen listed the following as current equipment: two S-42's flying from Miami to Manaos, five S-43's, eight Catalinas, one Grumman amphibian and one Lockheed.

He said that Leo Crowley, director of the new Office of Economic Warfare, to which Rubber Development Corp. was transferred from RFC under the President's recent executive order, has authorized continuance of the program. Chambers will continue to serve the organization in a consulting capacity.

E. L. Stuhrman, in charge of communications engineering under the Air Transportation Branch, has recently left Washington for Manaos to direct additional installations of airway facilities in the Amazon basin.

CAB Chairman Hits Monopolies in Air; Sees Vast Cargo Volume

FREEDOM for full private enterprise and traditional competition in air transportation was urged by L. Welch Pogue, chairman of the Civil Aeronautics Board, in an address July 22 at a meeting in Denver sponsored by the Air Traffic Conference, the National Aeronautic Association and air-minded Denver organizations. He denounced all theories of monopoly in the aviation field.

Pointing out that air mail service originally was started by the Post Office Dept., he asserted "there was never any intention on the part of this government to make this domestic field a governmental monopoly or a monopoly of any kind. There was provided instead the opportunity for competition."

He stressed the provision in the Civil Aeronautics Act of 1938 that there should be "competition to the extent necessary to insure the sound development of an air transportation system."

Pogue said it probably could be proven in almost any field that a monopoly would be cheaper, avoiding duplication of facilities, providing standardization and saving on advertising and salesmanship.

"But all these soft, comfortable, protective principles, inducing decay," he charged, "would not have been consistent with our great American pioneering tradition . . . Would a monopoly have been as bold in the development of equipment, in the willingness to try out new ideas, in its eagerness to serve the traveling public, in the smart development of efficient airline organizations, and in its superior system of handling the public on a personalized basis?

Competition Good

"Or if it had been such a one-company monopoly would it have preferred to sacrifice progress to stability? Would it have tolerated inefficiency perhaps? Would it possibly have obstructed adjustments to economic change which cost its owners money? What incentive would there have been for it to get up early, figuratively speaking, and work late to develop its business when it would have had without that effort no competition to test its mettle? In the scales of American experience, reasonable competition is good, it has made us strong, and we want to keep it."

Looking to the postwar opportunities of air transportation, Pogue declared we are behind Europe in putting first-class mail on planes. However, he said, the postwar era should see practically all first-class mail speeded by air.

Air transportation may look to unprecedented development in the carriage of passengers, he said, and into the smaller communities will go the benefits of air transportation with planes designed economically to serve them.

The greatest possibilities of all exist in the air cargo field, Pogue said. "The stimulus of war to cargo carriage has taught both carriers and shippers alike its tremendous possibilities. People are doing more than talking; they are planning all-cargo services with planes specially built for the purpose of developing this business. . . . Each mode of transportation must seek the level of its economic utility . . . Time alone will tick off the gap between air cargo and freight rates to the point where air transport's speed and flexibility overcome that gap. During that time will go to the air much new business, as well as large parts of older less-than-carload and package cargo business."

In the deeper significance of air transportation he asserted that the world, "giving full play to the ability of air transportation to contract the globe in size, can establish a world community."

Adm. McCain Takes New Post; Ramsey is Chief of Bureau

Rear Admiral John Sidney McCain, chief of the Navy's Bureau of Aeronautics, has been appointed to the new position of Deputy Chief of Naval Operations for Air with the rank of vice admiral, the Navy announces.

McCain

McCain's duties will be to correlate and coordinate all military aspects of naval aviation within the Navy Department, while the Bureau of Aeronautics will continue to deal with the design, procurement, and upkeep of aircraft and aircraft equipment.

Rear Admiral D. C. Ramsey, now a task force commander in the South Pacific, was designated to succeed McCain as Bureau chief.

Visits Coast: Viscount Knollys (seated), chairman of British Overseas Airways, is shown in Los Angeles hotel during his recent tour of West Coast aircraft factories. With him are Air Commodore D. L. Blackford, air attache British Embassy, (left) and Vernon G. Crudge, regional director of BOA.

Damon Returns to American; Marchev to Head Republic

Ralph S. Damon has resigned as president of Republic Aviation Corp. and will return to American Airlines on Sept. 1 as vice president and general manager, it was announced July 21.

Marchev

Alfred Marchev, executive vice president of Republic, will assume the presidency of the company on Sept. 1.

Damon went to Republic from American on a "loan" basis on May 1, 1941 at the time the company was preparing to enlarge its manufacturing facilities and engage in large scale production of the P-47 Thunderbolt, now in service with the U. S. Eighth Air Force in Britain. His work with Republic is rated as one of the outstanding jobs in the manufacturing industry.

Subject to approval of the Civil Aeronautics Board, Damon will continue to serve as a member of Republic's board of directors. In his letter of resignation, he stated that his services as a consultant to the corporation without fee would remain available for the next several months.

Marchev joined Republic in February, 1942 as assistant to the president, later becoming vice president and general manager. Early this year he was elected to the board of directors and on June 1 was appointed executive vice president in charge of all operations of the company.

BOAC Establishes Through Britain-to-Moscow Service

British Overseas Airways announced last fortnight that it has established through plane service between Britain and Moscow. Service on this route has been maintained by BOAC during the war on an infrequent and military basis.

Loening Confirmed by NACA

The National Advisory Committee for Aeronautics last week confirmed the appointment of Grover Loening, consultant on aircraft to the War Production Board, as chairman of its subcommittee on helicopters, which is organized under the NACA Committee on Aerodynamics.

Reprints Available

The complete summary of airline route applications on the next five pages is printed as an insert and can be easily removed from the magazine by those wishing to keep it for further reference. Additional copies may be secured from American Aviation Associates, American Building, Washington, D. C., at 50c a copy.

Route Applications Exceed 350,000 Miles

CAB Decisions Will Determine Postwar Airline Setup; Hearings Start in '44

By ERIC BRAMLEY

EIGHTY companies and individuals have filed applications with the Civil Aeronautics Board for airline routes covering more than 350,000 route miles, according to a survey completed last fortnight by *American Aviation*.

These applications have been filed by established airlines, by "paper" companies, by high school boys, by women, by truck, bus, railroad and steamship operators.

They cover requests for operations with four-engined airliners, single-engined planes, cargo ships, pickup planes and helicopters.

To bring order out of chaos and prepare for sound aviation development in the postwar period, the Civil Aeronautics Board must consider each of these applications—must decide which routes are required by the public convenience and necessity and which applicants are fit, willing and able.

Faces Big Problems

Two of the biggest problems facing the Board are (1) deciding whether other forms of transportation are to be permitted to operate air transport systems, and (2) deciding if there is to be an extensive "feeder" airline system in the United States. The latter problem is scheduled for preliminary consideration in September, when hearings will open on the Board's investigation into the feeder-pickup question.

It is learned by *American Aviation* that the Board's staff of examiners will start work on the general run of applications shortly after the first of next year.

After an extensive study of the applications, *American Aviation* was able to compute mileage requested by the 80 applicants totaling 350,777 miles. This does not include several indefinitely-worded applications seeking operations between "all states of the United States, Alaska and the District of Columbia."

The 350,777 miles represents a larger figure than the total railroad mileage in the United States, which is about 238,500 miles. As of last year, the domestic airlines had certificated routes totaling 45,985 miles, a relatively small part of which has been suspended since that time because of equipment difficulties. U. S. airline routes to foreign countries, before disruptions caused by war, totaled 84,928 miles. These figures do not include operations of the Air Transport Command.

More Expected

Before the Board's small staff of examiners, under the direction of C. Edward Leasure, starts considering the applications and issuing proposed reports for CAB consideration, it is certain that applications will be received from many more sources. Several of the larger railroads are known to be definitely interested in the airline picture and are quietly studying the situation before taking formal action.

In addition, 16 of the domestic airlines last fortnight made public their policy on worldwide routes and asserted that they will shortly file applications for such routes with the Board.

The largest single application now before the Board is that of the Greyhound Corp., bus operator, which seeks helicopter routes totaling 49,130 miles. The flood of helicopter applications, occasioned to a great extent by the recent widespread publicity received by the Sikorsky helicopter, has resulted in total mileage sought of 75,922 miles, not including so-called indefinite applications.

In the pickup field, pioneered by All American Aviation, applications total 55,352 miles.

Bus, truck, rail and steamship operators, exclusive of those with helicopter applications, want 51,329 route miles, again not including indefinite applications.

Industry observers have applauded the Board's decision to consider these applications at the earliest possible time. Had action been postponed until after the war, an expanded U. S. air system would not have been able to swing into action for many months, and probably years, they point out. Consideration now will help the CAB place its house in order for the postwar period, it is felt.

Freight Line Applies

R-B Freight Lines, Aberdeen, S. D., in a CAB application, seeks to transport cargo from Twin Cities to Billings via Watertown, Aberdeen and Miles City. Transportation of persons and mail is asked from Twin Cities, Watertown, Miles City and Billings on the one hand and Aberdeen on the other; also from Watertown on the one hand to Miles City and Billings on the other.

WAL Asks New Route

Western Airlines has asked the Civil Aeronautics Board for a route from San Francisco to Seattle via Sacramento, Chico, Klamath Falls, Bend, The Dalles, and Portland. The proposed route would serve the inland empire of Oregon, heretofore never serviced by air.

Railroad Files Application

Trustees for the Denver & Rio Grande Western Railroad have filed application for extensive air routes in the west. The application asks the same routes sought by Rio Grande Motor Way, totaling 3,273 miles (shown in tabulation on next five pages).

Braniff Asks Nuevo Laredo

Braniff Airways has asked CAB permission to operate between Laredo, Tex., and Nuevo Laredo, Mexico, a distance of about seven miles.

American Aviation Photo.

Face Big Job: The tremendous job of holding hearings on applications for over 350,000 route miles of new airline service falls to the small group of Civil Aeronautics Board examiners shown above. Shown here at a meeting with C. Edward Leasure, chief of the CAB Office of Trial Examiners (center, seated), are, left to right, Ross I. Newman, F. A. Law, Jr., Leasure, Assistant Chief Examiner F. W. Brown, and Vincent Gingerich. Standing, left to right, are William J. Madden, J. Francis Reilly, Berdon M. Bell, Herbert K. Bryan, Lawrence J. Kosters, Thomas L. Wrenn and Albert F. Beitel. Only examiner not present was Barron Fredericks. Three former examiners are now officers in the Navy: Albert Forster, John Belt and Ralph Wiser.

Summary of Applications Filed With CAB

(Compiled by AMERICAN AVIATION, *to and including July 27, 1943)*

Domestic Airlines

Company and Routes	Mileage
AMERICAN AIRLINES	
Cincinnati-Philadelphia-New York	533
Stop at Akron on Route 22	27
Stop at Worcester on Routes 18 and 21	4
Stop at New London on Route 18	13
Stop at Hartford on Route 21	
Stop at San Antonio on FAM26	103
Stops at Louisville, Oklahoma City and Lubbock on 4 and 23	
Stops at Waterbury-Meriden-Bristol-New Britain, Fall River-New Bedford, and Brockton-Taunton-Attleboro on Route 18	216
El Paso-Oklahoma City-Little Rock	935
Memphis-Louisville-Washington	823
Washington-Richmond-Lynchburg	190
Philadelphia-Wilmington-Baltimore	61
Detroit-Cleveland	91
Syracuse-Philadelphia	273
Nashville-New Orleans	462
Detroit-Columbus	177
Chicago-Twin Cities	370
Cleveland-Columbus	136
Cincinnati-Pittsburgh-Philadelphia	436
Milwaukee-Chicago	82
Tulsa-Joplin-Springfield	171
St. Louis-Detroit-Cleveland	622
Detroit-Miami (new mileage Columbus-Miami)	1,072
	6,856
BRANIFF AIRWAYS	
Stop at Austin on Route 50	23
Oklahoma City-Memphis	477
Memphis-Atlanta	390
Stop at Lubbock on Route 15	101
Stop at Topeka on Route 9	13
Stop at Moline on Route 9	7
San Antonio-El Paso	525
Austin-Houston	153
Amarillo-San Antonio	467
Amarillo-Houston	598
Laredo-Nuevo Laredo	7
	2,761
CHICAGO & SOUTHERN	
St. Louis-Detroit	487
St. Louis-Detroit	528
Memphis-Detroit	658
Memphis-Pittsburgh	693
Stop at Little Rock on Route 53	40
New Orleans-Guatemala City-Balboa	2,275
New Orleans-Havana-Balboa	1,750
New Orleans-Miami-Havana	875
New Orleans-Nassau-Port of Spain	2,180
New Orleans-Havana-Port of Spain	2,450
Chicago-Batavia	10,250
Houston-Mexico City	780
	22,966
COLONIAL AIRLINES	
New York-Nassau	1,400
Stop at Springfield on FAM1	
Newark/New York-Boston/Bedford (9 alternatives)	225
New York-Ottawa and Binghamton-Washington	648
	2,273
CONTINENTAL	
Hobbs-San Antonio	393
DELTA	
Extend Route 24 from Columbia via Charlotte and Asheville to Knoxville	253
Extend Route 24 from Columbia via Spartansburg, Greenville and Asheville to Knoxville	236
Stop at Louisville on Route 54	51
Cincinnati-Roanoke	274
Roanoke-Norfolk	220
Roanoke-Columbia	242
Extend Route 24 from Savannah to Jacksonville	116
	1,392
EASTERN	
Stop at Raleigh on Route 5	217
Memphis-Greenville	439
New York-Charleston	674
Stop at Knoxville on Route 10	341
Extend Routes 5 and 6 New York-Boston	531
Amend Route 10 to include Savannah as terminal point	565
Extend Route 40 via Ocala	232
Stops at Greensboro, Charlotte, Spartanburg, Greenville and Columbia on Route 6	284
Memphis-Detroit	649
New Orleans-Miami	714
Miami-Key West	136
New Orleans-Balboa New Orleans-Havana-Balboa Tampa-Balboa Miami-Balboa	4,322
	9,085
HAWAIIAN AIRLINES	
Honolulu-Los Angeles	2,391
INLAND	
Great Falls-Nome	2,385
Fairbanks-Bethel	606
Billings-Casper	296
Billings-Rock Springs	306
Rapid City-Rawlins	271
Cheyenne-Salt Lake	388
Cheyenne-Omaha	478
Huron-Mankato	210
Casper-Omaha	500
Casper-North Platte	218
Omaha-Sioux Falls	161
Scottsbluff-Ainsworth	196
Rawlins-Jackson	216
Denver-Cheyenne	107
Denver-Casper	272
Lander-Casper	120
Chicago-Seattle (unduplicated mileage)	1,501
Minneapolis-Denver	711
	9,175
MID-CONTINENT	
Stops at Joplin, Coffeyville and Bartlesville	22
Minot-Regina	213
Tulsa-New Orleans	585
Twin Cities-Chicago	368
	1,188
NATIONAL	
Miami-Key West	140
Tampa-Havana	344
New York-Jacksonville	900
Tampa-Miami-Canal Zone	1,307
Tampa-New Orleans	500
Stop at West Palm Beach on Route 31	230
	3,421
NORTHEAST	
Boston-New York-Newark	255
Bangor-Northwest River, Labrador	1,803
Boston-London-Paris Boston-Azores-Moscow Boston-Glasgow-London Boston-Reykjavik-London Boston-Oslo-Prague-Moscow	24,171
	26,229
NORTHWEST	
Minneapolis-Fairbanks	2,530
Stop at Great Falls on Route 3	191
Chicago-Washington	597
Minneapolis-New York	1,033
Nome-Manila Nome-Calcutta Seattle-Manila Seattle-Calcutta	9,515
Seattle-Victoria	85
	13,941
PENNSYLVANIA-CENTRAL	
Stop at Baltimore on Route 14	40
Stop at Hickory on Route 51	
Extend Route 51 to Jacksonville	471
Savannah-Greensboro	314
Knoxville-Savannah Knoxville-Asheville Columbia-Savannah Asheville-Savannah	363
Norfolk-Detroit	638
Extend Route 55 to Memphis	274
	2,100
TWA	
Stop at Los Angeles on Route 37	195
Stop at Cincinnati on Route 2	211
Indianapolis-Detroit	275
Pittsburgh-Boston	527
Stops at Joplin, Tulsa and Oklahoma City on Route 2	75

New York-Boston	196
Stop at Terre Haute on Route 2	
Stops at Topeka, Salina and Hutchinson on Route 2	85
Stop at Columbia on Route 2	
Stop at Lancaster on Route 2	94
Los Angeles-San Francisco	330
Austin-Houston	153
	2,143

UNITED

Boston-Cleveland	488
Stop at Salinas on Route 11	
Stop at Long Beach on Route 11	22
Denver-Los Angeles	874
Extend Route 1 New York-Boston	202
Stop at Milwaukee on Route 1	80
Stop at Gooding on Route 1	
Stops at Visalia, Merced, Modesto and Stockton on 11	225
	1,891

WESTERN

Los Angeles-San Francisco	327
Stop at Jackson on Route 19	100
Los Angeles-Denver	884
San Francisco-Seattle	724
Los Angeles-Sacramento Stockton-Sacramento Stockton-San Francisco	352
Stop at San Bernardino on Route 13	35
Circular Route from Los Angeles	386
Circular Route from Great Falls	1,090
Circular Route from Pocatello	685
Las Vegas-Douglas	565
Circular Route from Great Falls	900
Circular Route from Los Angeles	530
Salt Lake-Las Vegas	398
Salt Lake-Preston	96
Salt Lake-Denver	432
Circular Route from Las Vegas	792
Lethbridge-Whitehorse-Fairbanks-Anchorage (temporary)	2,493
Lethbridge-Anchorage-Nome, with spur to Fairbanks	2,580
	13,369

Other Passenger-Mail-Express Applicants

ANDREW J. BURKE

Corpus Christi-Monterey, Mexico	280

CHESAPEAKE AIRLINES CHARTER SERVICE

Baltimore-Atlantic City Baltimore/Washington-Ocean City Washington-Atlantic City	686

ESSAIR

Amarillo-Houston	604
Garden City-Houston	799
Lubbock-Houston	492
Albuquerque-Houston	824
	2,719

HANNAFORD AIRCRAFT CO.

Hannaford Airport-Sault Ste. Marie	474

INTERNATIONAL AIRWAYS

New York-Cuidad Trujillo New York-Havana New York-Mexico City	4,267

MAYFLOWER AIRLINES

Nantucket-Providence	108

MIDWEST AIRWAYS

Logan-St. George St. George-Salt Lake	785

NEW YORK & BERMUDIAN AIR LINE

Newark-Bermuda	665

OREGON AIRWAYS

Portland-Marshfield	178
Portland-Klamath Falls	313
	491

PAN AMERICAN AIRWAYS

Tampa as additional intermediate point	330
New York-San Juan	1,610
Los Angeles-Mexico City	1,605
	3,545

PANAIR DO BRASIL

Belem-Miami	3,075

PAN AMERICAN-GRACE

Canal Zone to Miami, Tampa or New Orleans	1,560

SOUTHWEST FEEDER

Houston-Tulsa	789
Ft. Worth-Dallas-San Antonio	415
Ft. Worth-Dallas-Amarillo	560
Ft. Worth-Dallas-Oklahoma City	402
Oklahoma City-St. Louis	578
Oklahoma City-Kansas City	428
Kansas City-St. Louis	251
St. Louis-Chicago	354
Chicago-St. Louis	447
	4,196

SOUTHWESTERN AIR LINES

Houston-St. Louis	725

STATE AIRLINES

Pittsburgh-Jacksonville	708
Detroit-Norfolk	711
Louisville-Wilmington	638
	2,057

TWA-NEW ENGLAND

Newark-New York-Boston	199
Newark-New York-Boston	190
New London-Taunton	91
Newark-New York-Worcester	178
Newark-New York-Springfield	155
	813

TACA

Miami-San Jose	1,510

VIRGINIA CENTRAL AIRLINES

Lynchburg-New York	385
Lynchburg-Atlanta	429
Lynchburg-Mobile	725
Lynchburg-Cincinnati	492
Lynchburg-Norfolk	164
Lynchburg-Chicago	575
	2,770

RAY WILSON

Circular Route from Denver	687

E. W. WIGGINS

Providence-Boston	113
Providence-Nantucket	183
	296

WICHITA FALLS AIR TRANSPORT

Oklahoma City-Midland	392

BOWEN AIRWAYS

Amarillo-Houston	705
Houston-Tulsa	480
Ft. Worth-Dallas-St. Louis	590
Ft. Worth-Dallas-New Orleans	456
Beaumont-Tulsa	406
Oklahoma City-Memphis	425
Kansas City-New Orleans	756
Ft. Worth-Dallas-Houston	255
Houston-Laredo	352
Houston-Brownsville	425
Beaumont-San Antonio	290
San Antonio-Brownsville	311
Amarillo-Brownsville	875
Ft. Worth-Dallas-El Paso	671
Ft. Worth-Dallas-Corpus Christi	416
Shreveport-San Antonio	449
Amarillo-Ft. Worth-Dallas	374
Oklahoma City-San Angelo	364
Oklahoma City-Ft. Worth-Dallas	234
Amarillo-Shreveport	525
Austin-Beaumont	311
Beaumont-Kansas City	655
Houston-St. Louis	789
Abilene-Beaumont	480
Ft. Worth-Dallas-Salt Lake	1,156
Ft. Worth-Dallas-St. Louis	682
Ft. Worth-Dallas-San Angelo	228
New Orleans-Brownsville	550
	14,300

Air Mail Pickup

AERO PICKUP SERVICE CORP.

Charlottesville-Winchester	813

ALL AMERICAN AVIATION

Cincinnati-E. Liverpool Beaver Falls-Columbus Stops at Erie and Harrisburg on Route 49	1,602

AUTOMATIC AIR MAIL

Circular Route from Moline	764
Moline-Omaha	643
Omaha-Moline	579
Moline-Springfield	428
Springfield-Moline	433
Springfield-St. Louis	332
St. Louis-Springfield	509
St. Louis-Kansas City	518
Kansas City-St. Louis	496
Kansas City-Coffeyville	499
Coffeyville-Kansas City	519
Moline-Green Bay	576
Green Bay-Moline	584
	6,880

CENTURY AVIATION

Circular Route from Sioux City Circular Route from Grand Island	1,547

DES MOINES FLYING SERVICE

Des Moines-Madison	398
Des Moines-Madison	403
Des Moines-Moline	416
Des Moines-Springfield	404
Des Moines-Omaha	387
Des Moines-Sioux Falls	400
Des Moines-Minneapolis	404
Des Moines-Minneapolis	398
	3,210

MERCURY DEVELOPMENT CORP.

Indianapolis-Grand Rapids	370
Indianapolis-Detroit	379
Indianapolis-Detroit	387
Indianapolis-Nashville	392
Indianapolis-Nashville	397
Indianapolis-St. Louis	389
Indianapolis-Chicago	370
Kansas City-Des Moines	390
Kansas City-Moline	371
Kansas City-St. Louis	389
Kansas City-St. Louis	401
Kansas City-Tulsa	383
Kansas City-Tulsa	430
Kansas City-Omaha	368
Chicago-St. Louis	396
Chicago-Des Moines	386
Chicago-Rochester	426
Chicago-Minneapolis	429
Chicago-Wausau	396
	7,451

MID-CONTINENT AIRLINES

Tulsa-Kansas City	368
Kansas City-Tulsa	321
Circular Route from Tulsa	360
Kansas City-Omaha	285
Omaha-Kansas City	350
Kansas City-Des Moines-St. Louis	682
Des Moines-Omaha	509
Twin Cities-Des Moines	416
Twin Cities-St. Louis	654
	3,954

PAGE AIRWAYS

Buffalo-Newark	220
Burlington-Syracuse	200
Syracuse-Albany	140
Burlington-Albany	160
Albany-Newark	140
New Orleans-Shreveport	382
New Orleans-Houston	369
New Orleans-Shreveport	535
	2,146

REBEL AIR FREIGHT

E. St. Louis-Memphis	395
Circular Route from Memphis	497
Jackson-New Orleans	255
	1,147

SOUTHERN AVIATION CORP.

Circular Route from Memphis Circular Route from Nashville Circular Route from Nashville Circular Route from Knoxville	1,996

SOUTHWEST AIRWAYS

Los Angeles-Calexico	245
Los Angeles-San Diego	185
Los Angeles-Fresno	312
San Francisco-Fresno	189
San Francisco-Santa Maria	280
San Francisco-Eureka	314
San Francisco-Medford	407
Portland-Medford	416
Portland-Astoria	105
Seattle-Astoria	218
Seattle-Port Angeles	225
Ft. Worth-Dallas-Texarkana	303
Ft. Worth-Dallas-Shreveport	287
Ft. Worth-Dallas-Lufkin	214
Ft. Worth-Dallas-Austin	282
Ft. Worth-Dallas-San Angelo	344
Ft. Worth-Dallas-Odessa	370
Ft. Worth-Dallas-Wichita Falls	309
Little Rock-Texarkana	224
Houston-Lufkin	296
San Antonio-Austin	198
San Antonio-San Angelo	321
Amarillo-Odessa	409
Oklahoma City-Wichita Falls	286
Houston-Corpus Christi	372
San Antonio-Corpus Christi	230
San Antonio-Laredo	336
Amarillo-Clinton	367
Oklahoma City-Okmulgee	313
Oklahoma City-Ft. Smith	327
Brownsville-Laredo	286
	8,749

SOUTHWEST FEEDER AIRLINES

Houston-Tulsa	519
Houston-Ft. Worth-Dallas	480
Tulsa-Ft. Worth-Dallas	501
Houston-Ft. Worth-Dallas	524
Oklahoma City-Ft. Worth-Dallas	471
Oklahoma City-Kansas City	560
Kansas City-Tulsa	419
Tulsa-St. Louis	450
St. Louis-Chicago	604
Chicago-St. Louis	534
	5,641

UNITED AIR LINES

Requests same points named in first 11 Southwest Airways' applications, and points in West Coast Airlines' application (following)	3,600

WEST COAST AIRLINES

Seattle-Port Angeles	241
Seattle-Portland	340
Portland-Marshfield	338
San Francisco-Eureka	263
San Francisco-Oakland-Redding	322
San Francisco-Santa Maria	280
San Francisco-Oakland-Bakersfield	410
Portland-Spokane	412
Spokane-Portland	449
Pendleton-Ashton	557
	3,600

WESTERN AIR LINES

Calexico-Los Angeles	243
San Diego-Los Angeles	197
Los Angeles-Fresno	336
Fresno-San Francisco	188
Santa Maria-San Francisco	235
San Francisco-Eureka	324
San Francisco-Medford	418
Medford-Portland	449
Portland-Seattle	346
Seattle-Port Angeles	343
	3,014

Helicopter Routes

NORTHEAST AIRLINES

To serve all first and second class post offices, railroad stations and airports in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and New York, covering a total of 407 points.

WILLIAM B. ALLEN

New York-Washington	230
New York-LaGuardia Field	9
New York-Newark	10
Washington-Washington Airport	3
Philadelphia-Camden Airport	10
Newark-Asbury Park	50
Caldwell-New York	21
Summitt-New York	21
Plainfield-New York	25
White Plains-New York	20
Mineola-New York	20
Rochester-Buffalo	70
	498

(In addition, Allen asks to serve all first and second class post offices in New York, New Jersey, Pennsylvania, Maryland, Delaware and the District of Columbia.)

PHILADELPHIA AND EASTERN AIRLINES

Elmira-Philadelphia	155
Binghamton-Philadelphia	155
Philadelphia-Easton-New York	115
Philadelphia-Trenton-New York	115
Philadelphia-Camden-New York	115
Philadelphia-Norfolk	230
Norfolk-Philadelphia	230
Clarksburg-Philadelphia	270
Washington-Harrisburg	110
Washington-Philadelphia	122
Pittsburgh-New York	350
Philadelphia-Pittsburgh	270
Philadelphia-Erie	327
Erie-New York	340
Elmira-Niagara Falls	145
Binghamton-Niagara Falls	192
Binghamton-Quebec	525
Watertown-Montreal	180
Buffalo-Albany	280
Binghamton-Albany	117
Binghamton-Utica	75
Elmira-Syracuse	70
Clarksburg-Erie	190
Washington-Boston	385
Norfolk-Clarksburg	280
	5,323

SOUTHWEST AIRWAYS

Lockheed Air Terminal-Santa Ana	94
Lockheed Air Terminal-Long Beach	40
Lockheed Air Terminal-San Pedro	61
	165

ANGELINE HARRIS

Rutherfordton, N. C.-Union City, Tenn.	420
Rutherfordton-Raleigh	248
Circular route from Rutherfordton	1,060
	1,728

SKYWAY CORP.

15 Connecticut points (exact route not designated)	225
22 Massachusetts points	320
3 New Hampshire points	22
9 New York points	150
4 Rhode Island points	65
	782

GREYHOUND CORP.

New York-Great Falls	2,679
Minneapolis-Fergus Falls	203
Annapolis-Albuquerque	2,016
Amarillo-El Paso	435
San Antonio-San Diego	1,527
New York-Santa Monica	3,246
Salt Lake City-San Francisco	804
Canadian border-Aberdeen	1,102
Philadelphia-Denver	1,969
Oklahoma City-Houston	510
Richmond-Knoxville	451
Nashville-Los Angeles	2,369
Birmingham-Ft. Smith	571
Louisville-Hibbing	996
Denver-Amarillo	450
Marianna, Fla.-Natchez, Miss.	538
Richmond-Mexican border	1,897
LaGrange, Ga.-Opelika, Ala.	76
Brewton-Mobile	128
Orange-Beaumont	45
Norfolk-Indianapolis	762
Madison-Hibbing	506
Detroit-Ludington	256
Detroit-Canadian border	1,209
Grayling-St. Ignace, Mich.	106
Chattanooga-Jonesboro	420
Jackson-South Bend	134
Ann Arbor-Elkhart	136
Chicago-Peoria	182
Louisville-Washington, Ind.	95
Clarksburg-Charleston	142
Henderson-Durham	43
Hammond-Evansville	293
Canadian border-New York-Washington-Miami	1,977
Springfield-Vicksburg	685
Toledo-Louisville	220
Birmingham-Lafayette, La.	556
Toledo-Savannah	957
Canadian border-Scranton-Baltimore-Norfolk	720
Winchester-Charleston	614
Knoxville-Jacksonville	590
Canadian border-Jackson, Miss.	1,036
Grand Rapids-New Orleans	1,165
Canadian border-New York-Norfolk	756
Raleigh-Waycross, Ga.	573
Boston-Cincinnati	971
Canadian border-State College, Pa.	551
Pittsfield-New York	155
Cleveland-Pittsburgh	138
Philadelphia-Toledo	597
Canadian border-Buffalo-Philadelphia	410
Boston-New Haven	159
Springfield, Ill.-Corinth, Miss.	153
Raleigh-Augusta	479
Raleigh-Winston Salem	290
Norfolk-Bristol	124
Florence-Atlanta	470
Greeneville-Georgetown	347
Washington-Cleveland	241
Pittsburgh-Charleston, W. Va.	425
Pittsburgh-Columbus	235
St. Louis-Evansville	199
Kansas City-Corpus Christi	197
Canadian border-Billings	1,077
Canadian border-Billings	369
Kansas City-Texarkana	519
Duluth-Fairmont, Minn.	296
Kansas City-Miami, Okla.	174
Eau Claire-Brookings, S. D.	414
Tracy-Sioux City	169
Bemidji, Minn.-St. Cloud	175
Marquette-Milwaukee	303
Calumet-Escanaba	185
Mt. Pleasant, Tex.-Waco	213
Portland-San Francisco-Los Angeles-Mexican border	1,341
Medford-Weed	161
Portland-San Francisco-Long Beach-San Diego	1,352
Williams-Phoenix	183
	49,130

INTERSTATE TRANSIT LINES

Chicago-Omaha	533
Chicago-Omaha	500
Omaha-Salt Lake	1,008
Omaha-Portland	940
Portland-Spokane	381
Pendleton-Spokane	206
Grangeville-Pendleton	228
Grangeville-Spokane	195
Salt Lake-West Yellowstone	363
Kansas City-Cheyenne	304
Kansas City-Omaha	221
Kansas City-Excelsior Springs	31
Omaha-Sioux Falls	196
Omaha-Sioux City	113
Omaha-Norfolk, Neb.	127
Norfolk-Columbus	55
Omaha-Lincoln	62
Kansas City-St. Joseph	56
Omaha-Fairmont	248
Ottumwa-Des Moines	93
Des Moines-Ft. Dodge	100
Des Moines-Waterloo	125
Cedar Rapids-Dubuque	79
Dubuque-Davenport	75
Dixon-Rockford	42
	7,016

BURLINGTON TRANSPORTATION CO.

Chicago-Omaha	484
Chicago-Omaha	469
Omaha-Cheyenne	491
Cheyenne-Salt Lake	427
Salt Lake-Los Angeles	660
Salt Lake-San Francisco	662
Omaha-Denver	519
Kansas City-Omaha	212
Sioux City-Omaha	106
Sterling-Rapid City	300
Denver-Cheyenne	109
Cheyenne-Billings	491
Cheyenne-Billings	491
Clarinda-Des Moines	93
St. Louis-Cedar Rapids	284
Hannibal-St. Joseph	185
Quincy-Mendota	258
Peoria-Davenport	88
Denver-Trinidad	192
Property only	
Chicago-Omaha	469
Omaha-Denver	500
Denver-Billings	581
Casper-Billings	258
Galesburg-Kansas City	295
Mendota-Mt. Pleasant	139
Kewanee-Peoria	44
Peoria-Quincy	111
Des Moines-Kansas City	182
Omaha-Kansas City	185
Rock Island-St. Louis	221
Rock Island-St. Louis	238
	9,749

KENTUCKY-TENNESSEE AIRLINES

Ashland-Memphis	570
Circular route from Lexington	800
	1,370

ASBURY PARK-NEW YORK TRANSIT CORP.

New York-Asbury Park	44
New York-Atlantic City	107
	151

Bus, Truck, Rail and Steamship Applicants

REBEL AIR FREIGHT

Chicago-New Orleans (cargo only)	1,064

BLACK HILLS TRANSPORTATION CO.

Great Falls-Chicago	886

FREIGHT FLITE INC.

Boston-New Orleans (cargo and mail)	1,483

DENVER-CHICAGO TRUCK CO.

Chicago-Los Angeles (cargo only)	1,994
Chicago-Seattle (cargo only)	2,195
	4,189

SEABOARD AIRWAYS

New York-Miami	1,403
New York-New Orleans	1,273
New York-Boston	203
	2,879

WATERMAN AIRLINE

New Orleans-San Juan	1,749

PAN ATLANTIC STEAMSHIP CORP.

New York-New Orleans	1,226

KANSAS CITY SOUTHERN TRANSPORT CORP.

Kansas City-New Orleans	744
Ft. Worth-Dallas-New Orleans	505
	1,249

SHAWMUT AIR FREIGHT (cargo only)

Boston-Chicago	850
Boston-Chicago	920
Boston-Washington	390
Boston-Kansas City	1,321
Boston-Montreal	270
Boston-Halifax	370
Boston-London	3,290
	7,411

BRADY TRANSFER AND STORAGE CO. (cargo only)
Boston-New York-Washington-Philadelphia on the one hand to Chicago, Twin Cities, St. Louis, Kansas City, Omaha, Sioux Falls, Spencer, Sioux City, Des Moines, Waterloo and Ft. Dodge on the other hand 2,000

W. J. DILLNER TRANSFER CO. (cargo only)
Between airports in Pennsylvania and all airports in the several states, Alaska and the District of Columbia.

SOUTHWESTERN FREIGHT LINES (cargo only)
Long Beach-New York plus on-call service to off-route points 4,020

MILKY WAY TRANSPORT CORP. (cargo only)

New York-Houston	2,220
New Orleans-Dallas-Ft. Worth	550
New Orleans-St. Louis	662
	3,432

GREAT LAKES STORAGE AND MOVING CO. (cargo only)
Between all points in the United States and in Alaska, over irregular routes.

KEESHIN AIR FREIGHT (cargo only)
Basic routes

Boston-Washington	370
Boston-Des Moines	1,065
Bridgeport-Albany to points in western New York	....
Newark-Albany to points in western New York	....
Philadelphia-Albany to points in western New York	....
Baltimore-Albany to points in western New York	....
Newark-Des Moines	....
Philadelphia-Des Moines	....
Baltimore-Des Moines	....
Twin Cities-Boston-Newark-Philadelphia-Baltimore	....
Milwaukee-St. Louis	350
Twin Cities-St. Louis	435
Detroit-St. Louis	435
Detroit-Louisville	305
Cleveland-St. Louis	435
Louisville-Twin Cities	566
Cincinnati-Twin Cities	660
Philadelphia-St. Louis	....
Columbus-Des Moines	....
Columbus-Twin Cities	....
	4,621

(Mileage not shown in some cases because of duplications. In addition to basic routes, company has also requested certain other operations on which estimates cannot be reached.)

ARTHUR W. GLOSE
Between airports in Pennsylvania, New Jersey, New York and Delaware and airports in 33 states. Cargo only.

RIO GRANDE MOTOR WAY

Denver-Los Angeles	840
Denver-Salt Lake	435
Denver-Salt Lake	372
Craig-Rifle	74
Salt Lake-Ogden	33
Provo-Marysvale	145
Denver-Trinidad	194
Pueblo-La Junta	61
Walsenburg-Gallup	309
Durango-Mesa Verde	34
Leadville-Santa Fe	251
Grand Junction-Durango	143
Durango-Albuquerque	182
Pueblo-Montrose	178
Denver-Estes Park	82
	3,273

DENVER & RIO GRANDE WESTERN RAILROAD (filed by Trustees)
Asks same routes as Rio Grande Motor Way shown above 3,273

WILLIS DAY STORAGE CO. (cargo only)
Between all suitable airports in the United States.

INDIANA MOTOR BUS CO.

Indianapolis-Grand Rapids	285

R-B FREIGHT LINES

Twin Cities-Billings (cargo only)	....
Twin Cities-Watertown-Miles City-Billings on the one hand and Aberdeen on the other; Watertown on the one hand and Miles City and Billings on the other (persons and mail)	764

B. M. STUART & SONS

Houston-St. Louis	745
Dallas-Nashville	720
New Orleans-Kansas City	690
Shreveport-Mobile	350
New Orleans-St. Louis	625
Little Rock-Hattiesburg	285
Kansas City-Indianapolis	440
Des Moines-Atlanta	900
Decatur-Owensboro	215
St. Louis-Louisville	340
Springfield-Bristol	600
Nashville-Cape Girardeau	170
Paducah-Louisville	180
Louisville-Huntington	340
Meridian-Huntington	785
Asheville-Montgomery	370
Montgomery-Atlanta	140
	7,865

GREYHOUND CORP. (See helicopter applications)

BURLINGTON TRANSPORTATION CO. (See helicopter applications)

ASBURY PARK-NEW YORK TRANSIT CORP. (See helicopter applications).

GRAND TOTAL OF ALL MILEAGE 350,777

(In the majority of cases, mileage shown is taken from official records of the Civil Aeronautics Board. In applications where the company gives no mileage, it has been conservatively estimated, where possible, by *American Aviation*. Applications for indefinite routes cannot, of course, be estimated.—Editor's note)

AIR IS INTERNATIONAL

PASSENGER AND CARGO PLANES of many nations will ply the air after the war. That is a certainty!

The problems involved are totally different from any that ever confronted the world because there is only one air . . . international air!

* * *

The necessity immediately to study these problems is forced upon us by the rapid ascendancy of global military aviation. Prior to this war, aviation ranked in 40th place among the industries of the United States. Today it is No. 1.

Four years ago, all of the domestic Airlines in the United States operated a total of about only 265 transport planes . . . and received public patronage for only about half of their capacity. Now, in a single month, we build more than 25 times that number of aircraft.

Before 1939, American pilots made about 33 transatlantic flights. During this *one* year of 1943, *tens of thousands of flights* will be made over the Atlantic Ocean alone. Our Army Air Transport Command, and our Airlines under the Army's direction, fly millions of miles daily, over oceans and continents, over jungles and arctic regions.

* * *

International air traffic, therefore, is being debated in our Congress and in the British and Canadian Parliaments. The political, economic and social potentials are being pondered by our State Department and by officials of other nations. Our President has appointed an interdepartmental committee to seek answers to the many momentous questions involved.

The regulations evolved by these men, working in co-operation with the Civil Aeronautics Board, with the approval of the President and Congress, will affect every nation.

We cannot escape the consequences any more than we can escape air itself. Because air brings all peoples *closer* together, these men are making the blueprint for how best for us to *live* together.

* * *

There is no adequate precedent to guide these architects of our new world. Theirs is a more imperative pioneering job than faced our ancient ancestors when the sphericity of the earth was discovered. Past generations took centuries for the transition from the flat world to transportation around the world.

But the speed of the airplane, its freedom to travel in any direction, over land and water alike, create changes at a rate faster and on a scale vaster than have ever challenged men before. Therefore, our postwar-air committeemen must weigh factors that are as different, both in kind and degree, from elements inherent in land-and-water-transportation, as air itself differs from the earth it surrounds.

* * *

The surface of the earth is divided into many "pieces": oceans, continents, islands and topographical barriers. In contrast, air is all in one "piece."

Everyone is air-linked by the continuity of air to everyone else on earth. Every country equally is exposed to the constructive use of air and equally is vulnerable to its destructive misuse. Because airplanes travel *above* the earth, no nation can ensconce itself behind surface boundary lines or buffer states.

* * *

While a major obligation is to maintain aerial prowess for our own nation's protection we must recognize that air is not local, but universal. Inseparably it encompasses all of the earth. *Therefore the well-being of all countries is becoming more interdependent in ratio to the speed and volume of air transportation.*

There is no better way to insure our nation's future in the air than to follow the American way. Private enterprise developed our Airline industry, making possible the foundation upon which we built our war-expanded aviation—a foundation so firm that quickly we overtook and surpassed the totalitarian nations.

* * *

In order that the benefits of postwar commercial use of the air may be available to all peoples, we favor governmentally regulated international Airline competition.

Before this war the Airlines of the United States led the world. *During* this war they are measuring up to unprecedented demands both at home and overseas. There is no question as to their ability to continue to do so *after* the war.

However, what is more important than the ambition of any one Airline is the furtherance of our national welfare, in the new relationship of peoples in our changing world. Therefore the postwar-air program must be predicated upon agreements between nations.

* * *

In the final analysis our status in world-air is a matter of individual responsibility. Air-rules cannot make of us an *airfaring* nation. They can only give us the opportunity, along with other countries, to *utilize* the air most effectively.

A. N. KEMP

President, AMERICAN AIRLINES, Inc.

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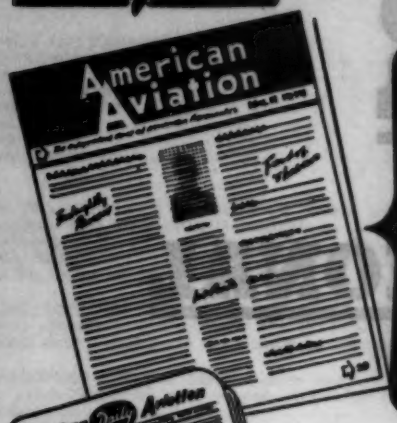

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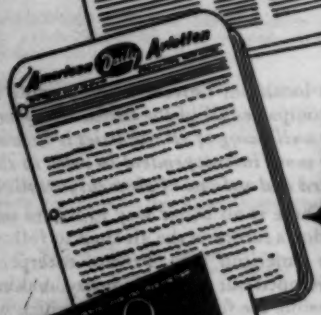

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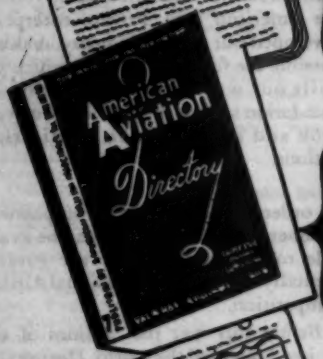

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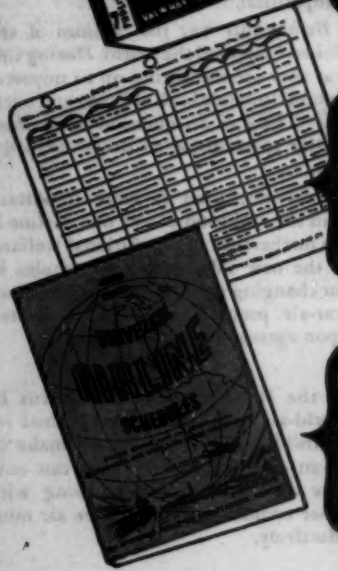

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Ansett Airways Head Seeks U. S. Line; Fights Monopoly

By WAYNE W. PARRISH

REGINALD MYLES ANSETT, president of Ansett Airways, of Australia, who is in this country on a month's visit, is anxious to operate an airline between Australia and the United States after the war and would use American equipment in the operation if he is successful in obtaining the route.

A slight, agile, and self-confident transport executive who also has other interests in Australia, Ansett is a rugged individualist, an independent, and definitely pro-American in his thinking. A month ago he passed through the country on his way to England, and will return to his home country sometime in August. Well versed in air transport problems, and believing in competition and high utilization of equipment, Mr. Ansett is hopeful that his company will be Australia's airline crossing the Pacific eastward to the United States.

Ansett

Before the war Ansett Airways operated about 2,500 route miles internally in Australia, but when the U. S. entered the war the entire operation was turned over to the U. S. Army's Service of Supply for its exclusive use under contract. The company had only three transport planes, and all of the five airlines in the country had only a total of about 14 or 15 transports before the war.

Mr. Ansett explained that in addition to his own company, the other operators are: Australian National Airways, owned by five shipping companies, and operating internal routes; Quantas Empire Airways, operating externally in connection with British Overseas Airways Corp. of Great Britain (part of the Empire system); Guinea Airways, operating between Adelaide and Darwin; and Robbins and Miller, operating between Perth and Darwin. There are a few smaller companies of minor consequence.

Generally speaking, airlines are regulated and licensed much as they are in the United States, but one major exception is that no company is permitted to own and operate its own communications or airways system. The government has complete control of all communications, and supplies all airports as well.

Mr. Ansett is opposed to monopolies, and he is generally opposed to surface carriers operating airlines, at least operating them off their own surface routes. He is opposed to government ownership, and believes very strongly that Australia should seek more American capital and work toward closer relationships with the United States, as opposed to control from London. All Australian airlines have used U. S. aircraft almost exclusively, he said, and the operating techniques are much the same.

As far as he knows no other Australian company has ambitions to fly the Pacific, and he believes one company from his country, and one from the United States, could handle all of the available traffic. He sees no reason for a British airline operating across the Pacific.

He believes no Pacific operation is possible without a substantial mail pay which would amount, in a sense, to a subsidy, at least until traffic developed sufficiently. He is opposed to the use of the word "subsidy," and believes all governmental payments should be for carrying the mail.

It seemed rather certain in discussions with him that Australia will not permit an American company to operate into its country unless reciprocal rights are granted to an Australian concern. Mr. Ansett believes the civil aeronautics boards or agencies of each country are equipped to work out the necessary rights and to determine the operators.

He pointed out that Pan American Airways was refused admittance to Australia because PAA, as a private company, could not grant rights to an Australian company to land at Hawaii and enter the U. S., and the U. S. government was reluctant at that time to grant any such rights because of the Japanese situation.

Mr. Ansett said the movement in England to discard the monopolistic idea for postwar air transport is gaining ground, and said he felt confident that no single company could adequately represent Great Britain in global flying. He believes the job is too big for one company and that it should be handled by individual companies flying in various parts of the world.

Cut Rate

A commentary on the lack of postwar planning in Washington occurred the other day when an aviation consultant was lunching with a manufacturer.

"How much will you charge me to digest all of the government's postwar plans," the manufacturer asked.

"Two cents," the consultant replied.

"That's an outrageous price," came back the reply. "It isn't worth it."

Visits South America

CAB Member Josh Lee (right) is shown alighting from a Pan American-Grace Airways plane in Buenos Aires in company with Harold J. Roig, president of the airline, during Lee's recent tour of South America.

'De-Germanization' of South American Lines Nearly Complete—Lee

Immediate steps should be taken to satisfy the demand for air transport equipment in Central and South America, in the opinion of CAB Member Josh Lee, who returned last fortnight from a six-week's tour of the Latin countries.

"If we can possibly spare any equipment from the war effort—planes, motors, and parts—we should send them to our neighbors to the south, not only as a goodwill gesture but to complete the de-Germanization of airlines in these countries," he said.

"De-Germanization" is nearly accomplished in South America, Lee reported.

"I saw only 10 Junkers and 2 Focke-Wulfes on the whole trip" he said. "No doubt there are many more in service, but I am sure they would not be in use if it were possible for South American operators to get American planes. The German ships are difficult to keep in repair as spare parts have been cut off."

The former Senator observed that mostly small planes are being manufactured in South America, presumably for local service off through routes. The accent is being placed on domestic rather than international aviation, he feels.

Lee visited a plant at Lima, Peru, where the fuselage of a single-motored, five-passenger plane is being produced with wooden frame and fabric covering. American-made motors are being installed.

At Cordova, Argentina, a plant is making motors alone. At Rio de Janiero, a small, plywood cargo plane is in production, he said. A metal pursuit plane is "on the line" at Buenos Aires.

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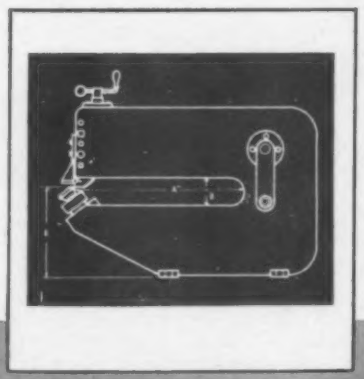
In design, this Model 06 has many distinct advantages. It incorporates the unique Quickwork shearing principle used in the large power operated Quickwork Rotary Shears. In spite of the fact that it has inclined plane cutter shafts, there are no projections beyond the upper cutter. Even the stripper may be removed to facilitate close work or for cutting on short radii. Deep throat, 18 in., permits handling of large sheets.

Power Equipment—Special Attachments—Information on special attachments or power equipment for use with the Model 06 is available on request.



Over-all dimensions: 24" x 30½" x 14". The Quickwork Model 06 Rotary Shear bolts to any bench or mobile worktable. Deep 18" throat makes it possible to handle wide sheets.

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BEW Air Transport Division Will Continue; Perkins' Post Vacant

Exact fate of the International Air Transport Division of the old Board of Economic Warfare—whose work has evolved into a matter of major importance to the transport field as well as the war effort—is uncertain under terms of the President's directive which abolished BEW and created in its place the Office of Economic Warfare, inquiry by *American Aviation* reveals.

At the same time the question of a representative on the Interdepartmental Committee on Postwar Aviation Policy remains unsettled. Milo Perkins, who was executive director of BEW, was deposed following the exchange of verbal brickbats between Vice-President Wallace and Secretary of Commerce Jesse Jones in which he also was involved. Perkins was a member of the top interdepartmental policy committee.

William Brinckerhoff, chief of the International Air Transport Division, will remain in charge of that unit and so far as known now the division will continue its operations on the same basis as under the old BEW, one official spokesman said. He pointed out, however, that no specific directives have been issued involving the Transport division and it is going ahead merely on the basis of a statement by Leo T. Crowley, new director of the Office of Economic Warfare, that all major functions of BEW would be continued.

Brinckerhoff is the old BEW representative on the subcommittee of the Interdepartmental Policy Committee—the group which has been doing the actual work of drafting the policy for submission to the President and for consideration at proposed international conferences.

In the absence of any word to the contrary, it is assumed that Brinckerhoff will continue to represent the organization on the subcommittee, the OEW spokesman said.

The Air Transport Division actually comes in one of the lower organizational brackets of OEW. At the top, dealing with exports and imports, is the Office of Economic Warfare Analysis, of which William T. Stone is the assistant director in charge. Under this office is the Technical Branch, of which Charles Rayner is chief. The Air Transport Division comes under this technical branch. It has a small staff of less than 30 men in Washington and a similar number in the field. It is credited with keeping war plants going by providing the transportation of critical materials, particularly minerals, to the U. S. from far-flung foreign sources, in cooperation with the Army's Air Transport Command and the Naval Air Transport Service.

Stone formerly was vice-president of the Foreign Policy Association in charge of its Washington office. Rayner was a regional director of the old Surplus Marketing Administration and for a number of years was Far Eastern representative of one of the major oil companies in Singapore. Brinckerhoff is widely known for his work in the aviation insurance field, with offices in New York.

Philip Amram, former Philadelphia lawyer and member of the U. S. solicitor's staff, who originally headed the Air Transport Division, went into the Southwest pacific area last spring to organize the BEW program in the Pacific islands, and Brinckerhoff replaced him as chief. Returning recently to Washington, Amram was assigned to organizing work with the Office of Imports.

Answering inquiries regarding the present status of the Air Transport Division, James Hasselman, OEW information director, declared that it is in no sense a postwar planning agency, but will make its experience and data gained during the past year of operation, available to planning agencies. Many observers have felt that the old BEW Air Transport Division would be in a position to figure prominently in postwar international air transportation.

Yount Heads AAFTC

An Army Air Forces Training Command has been established under Maj. Gen. Barton K. Yount, combining the Technical Training and Flying Training Commands. The reorganization is intended to effect economy in operations and maximum utilization of personnel and training facilities. The new command, which assumes all the duties and authorities of its two predecessors, is the first major evidence of a leveling-off in the Army's training program. It will operate flight and technical schools and supervise all AAF training programs from its headquarters at Fort Worth, Tex.

New AAF Insignia: This is the Army Air Forces new insignia for planes, which is said to improve visibility 60 per cent. All AAF units throughout the world have been directed to apply the insignia to their planes immediately.

Col. Westlake to Head AAF Publicity Activity

Col. William Westlake, former Chicago newspaper man and member of the Transcontinental Western Air news bureau, has been placed in charge of the Bureau of Public Relations of the U. S. Army Air Force. He has been on active duty since Feb. 1, 1941.

He will serve as assistant to Maj. Gen. Alexander D. Surles, director of the War Department's Bureau of Public Relations, directly under Gen. H. H. Arnold. His appointment presages a measure of return of AAF publicity activities following the long interim in which it was definitely sidetracked by the department.

Two Senators on Global Tour will Study Deals on Foreign Air Bases

PRESENT contracts provide for the turning over of hundreds of American-built military airports to foreign nations six months after the war ends, members of the Truman Committee recently charged and directed two members of their group embarking on a world-encircling trip to probe the situation.

The two members making the trip are Sen. James Mead (D., N. Y.) and Sen. Ralph Brewster (R., Me.).

"It is our understanding that hundreds of fine airports have been built and are being built with American money in foreign areas and that these fields will revert to the countries in which they are located six months after the war ends," Mead told the press, before leaving the country. "If there is anything in lend-lease in reverse, we certainly should have some concessions which permit our commercial planes to land on the fields and use their facilities in the postwar era."

Mead and Brewster were also ordered by Chairman Truman (D., Mo.) to obtain information for the Committee on (1) transportation and supply by sea, air, highway and rail and (2) quality and condition of repair and replacement of parts, including engines received from the U. S. and quantity or percentage found unusable by reason of faulty manufacture.

In discharging its duties investigating the war program, Truman said, his Committee deemed it "not enough just to follow the goods to the country's borders." He said:

"There must also be assurance that such goods reach the fighting fronts quickly and in good condition and that they are, in fact, what the fighting forces have asked for and need. Also there must be assurance that the vast sums which are being expended abroad for airfields, harbor and rail facilities and the like are economically spent to the end that the initial cost be kept to a minimum and that this country obtain therefrom the maximum possible postwar benefit and international good will."

He continued: "It is especially important that the Congress acquaint itself now with the arrangements which are being made abroad in the name of the United States by the numerous representatives of the many special agencies authorized to expend funds and to distribute American property. The time to correct mistakes is at their inception. The time to obtain equitable settlements of our postwar rights to use airfields and other properties built and paid for by us is now. We must do our utmost to win the war speedily and also to contribute our full share to a postwar atmosphere that will be conducive to an endurable peace."

The B.F. Goodrich Airplane of the month

CURTISS COMMANDO

SHOUTING "GERONIMO," American Paratroops drop on vital installations behind enemy lines. They get there fast . . . and in force . . . in great C-46 Army Transports known as "troopships of the sky." Because of their ability to transport Jeeps, supplies, and field artillery as well, Curtiss Commandos are among the most potent weapons in the United Nations' war bag.

Many B. F. Goodrich products fly with the winged army. Silvertown Tires and ET Brakes mean better ground control; De-Icers mean safety in icing conditions; and Bullet Sealing Fuel Cells mean protection from enemy action.

For the brilliant part it has already played in war theatres, and for its promise of even greater future performance, B. F. Goodrich salutes the Curtiss Commando—Plane-of-the-Month!

In war or peace

B.F.Goodrich

FIRST IN RUBBER

B.F.GOODRICH RUBBER RESEARCH FOR THE *Aviation industry*

THE NEW Air Corps specification was clear enough. It said that from now on expander tubes for ET brakes must operate efficiently in any temperature ranging from about 400° F. to 65° F. below zero. That was the challenge to B. F. Goodrich engineers.

The high temperature figure wasn't a problem. Expander tubes were already made to stand that temperature because of the terrific energy and heat they must absorb in stopping heavy, fast-landing planes. The real challenge was the 65° F. below zero figure. Expander tubes had been acceptable before if they functioned efficiently at −40° F.

The effect of this intense cold on all rubber is to make it brittle and cause it to crack when flexed. Since the main component of an expander tube is synthetic rubber, and since the tube must flex to function, the tendency to crack at low temperatures had to be overcome. And there was another problem. The oil, which had been changed in the brake tube to obtain better flow at low temperatures, was more destructive. To lick these problems a completely new brake tube was needed.

B. F. Goodrich engineers met the challenge two ways: First, a change was made in the shape of the tube opening (see opposite page), which meant that less flexing of the cold tube was required for efficient operation. This greatly relieved the strain on the tube and reduced its tendency to crack at the edges. But the problem of brittleness was still a factor, and the effects of the new, more destructive brake fluid still had to be overcome. This meant a completely new synthetic rubber compound was needed.

Calling on their long experience in compounding synthetic rubber compositions, B. F. Goodrich chemists worked out a combination of synthetic rubbers which they believed would give the necessary resilience at −65° F., work efficiently up to 400° F., and resist the destructive effects of the new brake fluid. Sample brake tubes were made of this compound and tested as shown on the opposite page. The results of these tests (which were more severe than those prescribed by the Air Corps) proved that the new B. F. Goodrich Compound could meet Air Corps specifications.

This is just one more example of the way B. F. Goodrich engineering and research meet changing requirements quickly . . . and come through with the satisfactory solution.

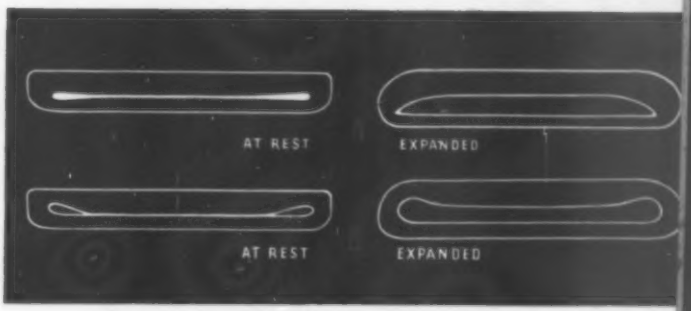
MAKERS OF B. F. GOODRICH TIRES AND OVER 80 RUBBER AND SYNTHETIC RUBBER PRODUCTS FOR AIRPLANES

ARMY E NAVY
Awarded to seven plants

Changes in compounding and tube construction mean

BETTER BRAKING AT 65° BELOW

Change in shape of tube opening greatly improved its operating efficiency at low temperatures. As shown at right (A), brake tubes used to have a completely flat opening. As a result, excessive strain was concentrated at the edges when the tube expanded. This caused cracking—especially at low temperatures—and eventually led to complete rupture. To solve this problem, B. F. Goodrich engineers changed the shape of the tube opening (B) to leave small bulges at the edges, which increased the arc at each edge. Thus flexing and strain at the edges were reduced considerably, and one of the main causes of tube failure at low temperatures was eliminated.



New compound put through grueling performance test: Sample expander tubes made of a new synthetic rubber compound developed in B. F. Goodrich Laboratories were first placed in a hot drum (1) at 400° F. for 24 hours. During this time they were flexed 4,400 times with normal brake clearances. Then the tubes were transferred to a cold box (2) at –65° F., kept there 72 hours, then flexed 12 times. The cycle was repeated, and upon completion, the tubes were dissected to see if failures had started at any points. No failures were found.

In war or peace

B.F.Goodrich

FIRST IN RUBBER

GEORGIE GREMLIN STRAINED HIS BRAIN ON THIS

BRAKE QUIZ

CAN YOU SCORE 100%?

Complete the ten statements by simply picking the one correct part (a, b or c) following each numbered statement. See if you can get them all.

1. **Expander tube brake clearances should be kept between 15-1000ths and 65-1000ths of an inch because . . .**
   a. Higher or lower clearances cause gremlinitis.
   b. Clearances under 15-1000ths cause excessive drag; over 65-1000ths impair brake efficiency.
   c. Improper clearances cause "tube spin."

2. **Excessive drag should be guarded against because . . .**
   a. Drag causes overheating, which may lead to tube failure.
   b. Drag causes ugly skid marks on runways.
   c. Drag upsets pilots' nerves.

3. **Expander tube brake frames should be inspected every 100 hrs. for cracked or broken torque lugs because . . .**
   a. Broken lugs should be contributed to the scrap drive immediately.
   b. Broken lugs may seriously damage lining.
   c. With damaged lugs brake might overexpand.

4. **In every 100-hr. check-up, you should pay particular attention to an E. T. brake's retractor springs because . . .**
   a. Damaged springs cause improper brake pressure release and result in drag.
   b. A retractor spring is very interesting.
   c. It is important to see if spring is retracted.

5. **The condition of the expander tube should be checked every 100 hrs. to . . .**
   a. Look for any signs of cracking, which would lead to tube failure.
   b. See if its air pressure is holding up.
   c. Check its basic resilience ratio.

6. **Brakes should never be operated when wheel is removed from axle because . . .**
   a. It's against regulations.
   b. It will harden the brake controls.
   c. It will cause severe damage and result in brake failure.

7. **Specified type of brake fluid should always be used because . . .**
   a. Wrong fluid might corrode the brake drums.
   b. Wrong fluid might have wrong compression.
   c. Wrong fluid will cause excessive swelling of rubber parts and result in erratic brake operation.

8. **Brakes should be bled for trapped air because . . .**
   a. Trapped air causes tube oxidation.
   b. Soft action will result if not bled properly.
   c. Trapped air throws wheels out of balance.

9. **Hydraulic fittings, connections, and lines should be checked for leakage daily because . . .**
   a. Leakage results in poor brake performance.
   b. Hydraulic fluid is expensive; we can't afford to let it leak away.
   c. Leaking fluid will damage the wheels.

10. **Bearing cones and cuffs should be thoroughly cleaned and repacked with grease every 100 flying hours because . . .**
    a. The crew chief says this is a "must."
    b. Any dirt or chips present will cause serious damage to the bearings.
    c. Gremlins hang out in the cones and cuffs and must be removed.

WHAT IS YOUR SCORE?

Each correct answer counts 10. 1-b, 2-a, 3-b, 4-a, 5-a, 6-c, 7-c, 8-b, 9-a, 10-b.

This is one of a series of maintenance quizzes prepared for ground crew trainees of the U. S. Army Air Forces Technical Training Command. It is our hope that this series will help all maintenance men get maximum service, safety, and efficiency from military, commercial, and civilian aviation equipment.

B. F. GOODRICH, AERONAUTICAL DIVISION, AKRON, O.

Skyway or Highway

B.F.Goodrich

FIRST IN RUBBER

Parks Wants a Postwar Conference

Air College President Advocates U. S. Meeting 'Away From Washington'

A CONFERENCE of all aviation interests to work out postwar air problems with particular reference to opening up the airways of the world to the planes of the U. S. as well as all other countries, has been advocated by Oliver L. Parks, president of Parks Air College, East St. Louis, Ill., and president of the Southwest Aviation Conference.

Parks believes the conference should be held at the earliest opportunity somewhere in the mid-west away from Washington. Outlining the objects of the meeting, he said no monopoly of the world's air spaces is desired—not in any section of the world.

Parks

"Our airline pilots will expect to observe regulations in other countries. Our nation has the same right to ask similar observance of rules by visiting airmen or foreign airline pilots," he said.

"I want to emphasize the point that the statesmen who represent the United States at the future peace councils must go there with the idea firmly implanted in their minds that our country must gain and hold airways rights to all inhabited parts of the world. Why? Because the world of tomorrow will be governed by force of example, if not by direct control, from the cultural centers whence emanate the principal airlines.

"The aviation leaders of our nation ought to meet in conference—and soon. That conference should enlist the best thought from the engineering division of aviation, aircraft manufacturing, air transport, military air forces, and the government departments having to do with civilian aviation.

"The objectives by and in behalf of U. S. aviation at the forthcoming peace council should be formulated and stated clearly by those who are in aviation. The statement should be of such logical forcefulness as to win the immediate support of the national public.

"It is recommended that such conference be held, not in Washington, but somewhere in the central part of the country. In Washington there is too much speaking up for the interests of other nations. Call this proposal selfish, call it provincial, call it nationalistic—what you will—but the fact remains that this conference of, by and for the aviation industry must be scheduled anywhere away from Washington. In the interior of our country will be heard more clearly the utterances of speakers who undertake to state principles for aviation's own national consideration as deserving foremost attention.

"At the conference our purposes must be given full consideration from the viewpoint of this nation's best interests alone. That policy having been determined, then let our statesmen go to the peace councils ready to meet the stipulations proposed by other nations for their rights in world-wide flight."

Aviation Calendar

August 2—CAB Chairman L. Welch Pogue speaker at Oklahoma City Chamber of Commerce and NAA dinner on "Merchandising by Air". Portion of speech broadcast on Mutual network, 9:15 to 9:30 p. m.

August 3—CAB hearing on Pacific Alaska Airways, Inc., mail compensation before Examiner William J. Madden.

August 3—L. Welch Pogue addresses Tulsa, Okla., Chamber of Commerce on "Air Service to Small Cities."

August 19—Braniff Airways, Inc., special stockholders meeting, Oklahoma City, to consider increase in common stock from 400,000 to 1,500,000 shares.

September 8—CAB hearing on United Air Lines extension, New York-Hartford-Boston.

Week of October 18—Annual meeting American Welding Society, Chicago, Ill. Aircraft Section, October 21.

November 4-6—Annual meeting Aero Medical Asociation, New Orleans, La.

Gill Robb Wilson Begins 4th Term at Helm of NAA

Gill Robb Wilson was re-elected president of the National Aeronautic Association at a meeting of the board of directors in Washington July 13. This will be Wilson's fourth term. A board meeting replaced the regular annual meeting of the association because of wartime travel restrictions.

Harry K. Coffey, of Portland, Ore., and William R. Enyart and James R. Graham of New York, were re-elected vice-presidents. William P. Redding was re-elected executive vice-president. Richard C. Palmer, secretary of the National Aircraft War Production Council, Washington, was elected secretary, and Reginald G. Coombe, of the Hanover Trust Co., New York, was elected treasurer.

Three new directors were named as follows: Dudley H. Dorr, of Boston; Glen Eastburn, of the Los Angeles Chamber of Commerce, and Lowell H. Swenson, of Minneapolis, Minn. They replaced Frank Tichenor and William Brinckerhoff of New York, and A. I. Lodwick. Directors whose terms expire this year were re-elected as follows: Roger Wolfe Kahn, New York; C. C. Thompson, Chicago; Stanley Draper, Oklahoma City; Stanley Wallbank, Denver; George Logan, St. Louis, and Harry Bruno, New York.

On the executive committee of the board of directors the following were named: William R. Enyart, Wayne W. Parrish, William P. Redding, James Graham, with the president and treasurer serving ex-officio.

Canada-Britain Air Mail Service is Established

Regular air mail service from Canada to Great Britain, with one plane a week, was inaugurated last fortnight, according to information given *American Aviation* by the Canadian War Information Service. Return air mail service from Britain will be irregular.

This mail service will be in addition to "airgraph" and "blue letter" dispatches carried by bombers for the armed forces, government officials and other official mail. It will be flown by the RCAF.

An Amphibious C-47 in Flight

This experimental amphibious C-47 cargo plane is undergoing tests at Wright Field. In flight, its landing gear retracts into the floats. Rudders help guide the plane in water. Tests next winter by Materiel Command engineers may prove that this plane can also land on ice and snow.

Plan Now for Disposition of Surplus Aircraft, Pogue Urges

UNLESS the United States makes wise plans now for the disposition of surplus transport aircraft and for the handling of air transport production capacity, "our progress in air transportation and aircraft development may be arrested for a decade," L. Welch Pogue, chairman of the Civil Aeronautics Board, said in Los Angeles on July 27.

In a significant speech at the Los Angeles Aviation Forum, Pogue discussed the bill introduced in Congress (H. R. 2959) placing responsibility in CAB for handling surplus aircraft.

While agreeing that the Board should have a large part to play in handling these aircraft, Pogue revealed that the Board favors forming a corporation, the board of directors of which would include representatives of the Army, Navy, State Dept., Treasury, Commerce Dept., and CAB.

The CAB chairman also asserted that "any postwar planning which does not provide for aggressive, practical application in the factories of this country just as soon as the war program permits, is a form of self-delusion."

Pogue warned that if surplus aircraft are simply peddled to the highest bidder, the U. S. can be reasonably sure of the following consequences:

"1. A vast and costly defense reserve will have been wasted.

"2. The transport aircraft market will be glutted for years to come.

"3. The capacity to manufacture and develop transport aircraft will suffer a blow from which it will take years to recover.

"This last consequence would be the gravest by far. Of course, the possession of a static reserve fleet of several thousand transport aircraft in condition to fly provides only short-term defense insurance. In this business let us place no dependence upon fixed and unchanging structures. No instrument of war or peace becomes obsolete so fast as an airplane. Aviation preparedness for either war or peace can only be represented by the power and capacity to supply continuously new and improved aircraft. Other nations have forgotten this truth to their everlasting regret. Let us never forget it.

"When we talk about surplus aircraft the first questions one asks are, how many aircraft are we talking about, and what kinds of aircraft? In the first place, we can largely eliminate combat aircraft from consideration because most of them will not be available for sale or disposal on the open market. Perhaps it would be possible to convert some bomber types for transport operation. However, this would be a most costly and inefficient undertaking. Further, to increase in this fashion the large surplus of transport aircraft which will surely be on hand at the war's end would be 'carrying coals to Newcastle' with a vengeance. There remain the transports and the smaller types of aircraft used for training, courier service and the like. These are the principal kinds of aircraft we are talking about . . .

"War is a hard master. Many of these aircraft which are put into service will not appear in the final inventory. However, in terms of peacetime civil air transportation, by any method of estimate, the number will be very large. In 1940, the United States output of aviation gasoline for all purposes was approximately 619,000,000 gallons. Under the normal peacetime standards of aircraft utilization, this gasoline would be only sufficient to operate approximately 2,000 of the sort of planes which would be represented by this surplus. This rough measure may serve to place the magnitude of our surplus problem in broad perspective. Also, it should afford food for sober thought upon any proposition to maintain in continuous operation large numbers of transport aircraft which are markedly less efficient in the use of gasoline than would be new types designed to take full advantage of latest developments in aircraft and engine design and improvements in aviation fuel . . .

"Assuming the very best possible job to have been done by the Army and the Navy in their specifications and designs, all the aircraft which will have been produced by the summer of 1944 will be obsolete as compared with aircraft which incorporate all of the known developments and improvements then available. Not only would it be possible now to design and build an airplane more efficient than any pre-war type—it would be possible to improve on every plane now being built. That is no one's fault. It is the price we pay for progress. It is a cheap price when the value of improvements is considered. But it means that probably every plane in the class of surplus transport aircraft at the end of the war will, even if otherwise in good condition, be obsolete in terms of what our factories are then capable of producing. Or, perhaps I might better say "what our factories *should* then be capable of producing." I shall discuss this distinction later. At the moment, I suggest that the state of preparedness of our factories for peacetime production at the war's end should have a most important bearing upon the whole problem of surplus transport aircraft.

"A closely related factor which I shall merely mention is the need for an intelligent program of tapering off production at the war's close. In all probability the aircraft manufacturing industry will still be running at high volume, and the surplus of aircraft will inevitably be increased by some unavoidable further production. We shall indeed be derelict, however, if we do not exercise the greatest care and wisdom toward preventing needless swelling then of the formidable surplus which will already be on hand.

"As I have previously indicated, the lack of a well worked out plan for coping with the surplus aircraft problem would doubtless result in the government's following the traditional policy of knocking down all surplus equipment to the highest bidder, with consequent saturation of both domestic and foreign markets. In addition to the unhappy consequences such a course would have upon the manufacturer of flying equipment and the economy of the country in general, the result would prove anything but a boon to the United States air transport industry. This industry's health cannot be predicated upon tomorrow's use of today's aircraft. Its future growth like its

(Turn to page 46)

Grand Rapids Industries Demonstrate: Some 40,000 citizens turned out on July 4 to see a "Wings for Victory" demonstration in the air of the CG-4-A glider, Sentinel and Skyfarer planes made by Grand Rapids Industries, Inc., an association of 15 Michigan furniture manufacturers who have announced they are in the lightplane industry to stay. The association is headed by Frederick H. Mueller, president, and Charles M. Kindel, vice president. After the war the Skyfarer will be offered as a "foolproof" low-cost family plane. Rights have been acquired from General Aircraft Corp. Picture above shows a jeep loaded in a Grand Rapids-made glider at the demonstration.

Beechcrafts at work

No. 6 OF A SERIES

In 1939 the U. S. Army Air Corps, preparing for any eventualities, ordered a quantity of F-2 BEECHCRAFT twin-engine all-metal monoplanes, especially equipped for rapid and accurate mapping of large areas. Adapted from the commercial Model 18 BEECHCRAFT airline and executive transport design, these planes carried two multi-lens tactical mapping cameras mounted in tandem.

Their special task (in addition to photographic training and other duties) was to map large portions of the United States and its possessions which had never before been completely surveyed. Operating at high speed from great altitudes, the F-2 BEECHCRAFTS fulfilled this vital task long before December 7th, 1941, when its importance became obvious. . . . . This is one of many instances of Air Forces foresight and efficiency in which BEECHCRAFTS have been privileged to do their part.

The F-2 Beechcraft above the highest land masses on the North American Continent. Official photograph U. S. Army Air Forces

Beech Aircraft

CORPORATION

BEECHCRAFTS ARE DOING THEIR PART

WICHITA, KANSAS, U. S. A.

Army Officials' Waste of Planes Draws Condemnation from Press

Revelation by *American Aviation* in an editorial in its July 1 issue that Army officers and some government officials are tying up 21-passenger transport planes for their personal use, and otherwise abusing sorely needed air transport facilities while the commercial airlines go begging for enough planes, has brought a veritable storm of reaction in the press throughout the United States.

Hundreds of newspapers have published the story, cartoonists have depicted it, and scores of editorial writers have taken up the theme in the local press—denouncing the practice.

Meanwhile the War Dept. has not attempted to refute the charges which were made in these columns, or in numerous newspapers throughout the country which commented on the *American Aviation* editorial.

Typical of the reactions of the press and public are the following excerpts from a few of these comments:

Youngstown, O., Vindicator and Telegram: "Checkups are being made at lake resorts to stop the abuse of B and C gasoline rations, and that it as it should be. The same principle applies to the armed forces, and there should be an investigation of *American Aviation's* charge that there are abuses in the use of transport planes by army personnel.

"Episodes which at least raised the suspicion that planes were being misused have frequently been seen here. One day a Douglas DC-3 transport was seen diving repeatedy at low level over a house near Niles, the pilot wasting gasoline for 20 minutes at the rate of 100 gallons an hour. Again, a pilot arrived in a four-motored bomber to make arrangements about his household goods. Virtually every weekend Army planes bring someone here for a visit."

Salt Lake City, Utah, Telegram: "Army authorities have a responsibility to stop this costly and uncalled for waste of transportation. And if the Army fails to do the job, then we hope Congress investigates the charges and takes action itself . . . To have Army officers and officials wasting air transportation for unnecessary junkets and personal pleasure trips while there is such a shortage of transportation for the public simply doesn't make sense . . .

"The charges have the ring of truth about them—and, knowing some of the abuses of Army automotive equipment, we can readily believe that there is similar abuse of Army air equipment."

Richmond, Va., Times-Dispatch: "The government officials and brass hats who have been commandeering 21-passenger planes for junkets and weekends had better think fast . . . The people of this country aren't going to put up with any such gross selfishness and waste . . .

"Is the public being asked to ride street cars or to walk, in order that Washington stuffed shirts may luxuriate on weekends in 21-passenger planes taken from those who so sorely require them? If these charges are proved, the guilty parties should be fired from the Federal service, and cashiered from the Army."

Louisville, Ky., Times: "If it is important, for victory, that rank-and-file civilians conserve gasoline, it is important for everyone to conserve it."

Macon, Ga., News: "When air travel becomes so critical that an ex-president, an outstanding expert on the food problem, is 'bounced' from a commercial plane en route, so as to make room for a priority pilot, the time has come to reassess the allocation of transport planes."

Huntington, W. Va., Advertiser: "The charge is serious . . . It is something that should have the attention of the Truman investigating committee. This is no time for such personal privileges and waste as are alleged."

Peoria, Ill., Star: "If there are enough warplanes so that an occasional officer can use one for a social trip, it would seem that the government should return to the commercial lines the ships loaned to the government for the duration."

Scranton, Pa., Tribune: "If such is not the case then the charges made by the magazine should be definitely and strongly refuted. . . . At any rate the public is entitled to an airing of the situation."

Petersburg, Va., Progress-Index: "We do not know how much water the publication draws nor the basis of its charges, but when they are sifted we are inclined to feel it will be found they have been exaggerated. However, because of the publicity given the matter it calls for action on the part of those whom the charges affect. It adds to the confusion, and surely Washington has more than enough."

Bill Provides for Prompt Pay on War Cancellations

The Senate Committee on Small Business has prepared legislation to meet situations arising from government delays in paying contractors whose war contracts have been cancelled, Sen. James E. Murray, chairman of the committee, announces. Murray lists provisions of the bill as follows:

1. Mandatory advance payments in advance of settlement to contractors and subcontractors.
2. Advance payments of at least 75 per cent of the amount certified by the contractor or subcontractor.
3. Advance payment to be made within 30 days after certification.
4. Authority for procurement agencies to make direct loans, or provide loan guarantees through private banks, against terminated contracts.
5. The right of a contractor or subcontractor to sue the government if he does not receive the minimum amount within the stipulated period.
6. The establishment of uniform contract termination policies by the chairman of the War Production Board.

Brazilian Air Minister on Tour of American Plants

Dr. Joaquin Pedro Salgado, Jr., Brazilian minister of aeronautics, is now on a tour of U. S. aircraft plants and airports. Upon his arrival in Washington last fortnight he was given a luncheon by Civil Aeronautics Administration at which W. A. M. Burden, special aviation assistant to the secretary of commerce, presided.

Dr. Salgado said planes for Brazilian air lines are being made in factories in Brazil, but that airplanes of American design now fly the routes of former German and Italian lines in Brazil.

Strengthening of Aeronautical Chamber Planned to Give Industry Postwar Voice

Details of a policy and program to make the Aeronautical Chamber of Commerce the authoritative spokesman for the aircraft manufacturing industry in decisions, plans and legislation now being considered, particularly in relation to the postwar period, are expected to be reported to the Board of Governors early in August.

A special committee of the Chamber has met twice within the past fortnight to draw up the recommendations. On this group are: Rudolph H. Deetjen, assistant to the president of Aviation Corp., as chairman: Henry W. Cohu, Washington representative of Northrop Aircraft, Inc.,; Charles Marcus, vice president-engineering, Bendix Aviation Corp.; J. Carlton Ward, president, Fairchild Aircraft Division; J. Story Smith, vice president and secretary, Jacobs Aircraft Engine Co.; and ex-officio, James P. Murray, eastern representative of Boeing Aircraft Co., and president of the Aero Chamber.

Impetus for the plan came largely from West Coast manufacturers, who feel that the aircraft industry has been taking no effective part in making vital decisions, even though government bureaus consider it the "problem child" of the postwar period. They also feel that Congress will be sympathetic to any program to preserve free enterprise in the industry.

They maintain there is now no "proper instrumentality to adequately represent the aircraft industry in the vital decisions being made in Washington." The Aircraft War Production Councils are limited strictly to implementing the war production program and cannot participate in such matters.

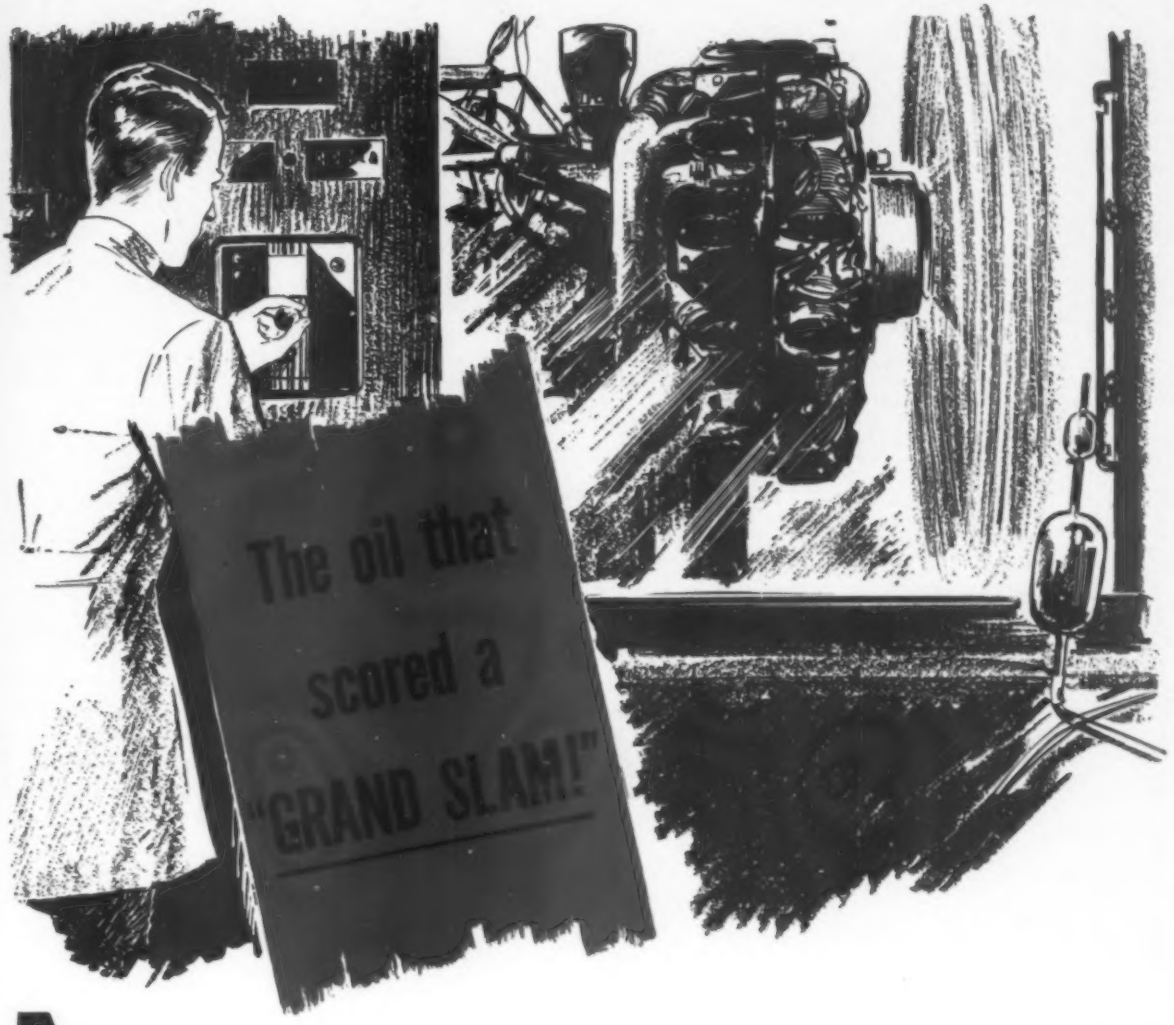
It is proposed to put in charge of the Chamber's "revitalized" program a man who is an experienced administrator, fully acquainted with the agencies of the government and the plans under consideration for postwar aviation.

Australia to Get Planes

President Roosevelt has given assurances that enough aircraft to increase the Royal Australian Air Force "by 60%" will be released, Prime Minister John Curtin said in answering recent opposition charges that his government had been derelict in meeting domestic problems.

Petroleum Research and War in the Air

One of a series of original Esso research developments that help give U. S. planes an edge in the air.



A WHALE of a lot of "little things" go into an airplane engine besides the big points of design that engineers argue about.

Take Lubricating oil . . .

The combination of stresses, speeds, heats, and operating temperature ranges for airplane engine oil are far stiffer than any ever asked of oil produced in such quantity before the Air Age roared in with the war.

That's why it means so much to us that ESSO Aviation Oil* is the *only oil in the world to win approval from all leading American and British aircraft engine builders!*

Perhaps we can't be blamed if we take a bow for that — and pass it along to the hundreds of people in our research laboratories — where for years we have been engaged in trying to give this country the benefit of the finest petroleum research facilities known to man.

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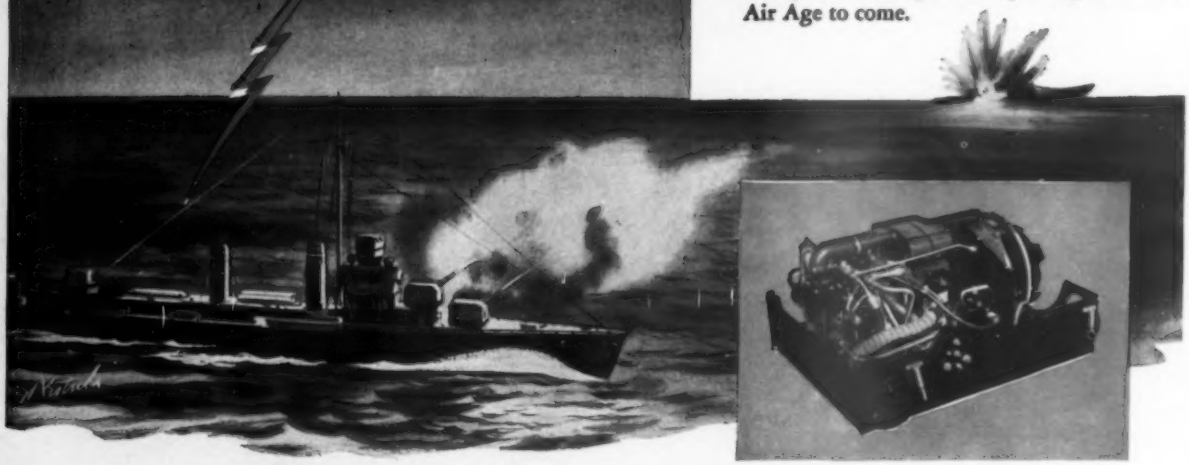

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6 Airlines Reduce Fares; Some Adopt Uniform Mileage Rates

THE reductions in passenger and express rates announced by six of the airlines on July 15 is viewed by CAB officials as definitely a step in the right direction, but these same officials believe that the airlines must do a lot more work on their general fare structure so that it will be in working order for the postwar period.

Passenger fare reductions, amounting to an overall decrease of from 6 to 7%, were announced by United, American, TWA, Eastern, Western and Braniff. Because of inter-line fares, however, the reductions resulted in tariff changes for all airlines.

The express rate reduction, although not totally unexpected, came as somewhat of a surprise to many observers. The CAB several months ago had ordered 11 lines to show cause why their passenger fares should not be reduced 10%, but the order had said nothing about express. The fact that the fare cuts do not come up to CAB's 10% demand is compensated for by the express reductions, which average 10½ to 11%. These reductions affect all lines except Northwest, over whose routes express still travels at old rates.

CAB still has fare investigations pending against Chicago & Southern, Delta, National and Pennsylvania-Central. Action against Northwest was dismissed because, CAB officials state, an examination of the company's operations showed that it was not deriving excess revenue from passengers.

One of the most significant developments of the passenger fare cuts is the adoption of uniform mileage fares by some of the lines. American, TWA and Eastern's tariffs are now on a 5.5c per airport-to-airport mile basis. United has adopted 5.2c per mile based on actual course-flown miles. Braniff's reductions were based on about 5c per airport-to-airport mile, while Western's averaged about 10%.

According to CAB tariff officials, this marks the first time that mileage has been a definite factor in fixing fares. Mileage has been used in the past, they admit, adding, however, that it has not been used with the same consistency as in the new fares.

The airline fare structure, they say, still leaves much to be desired. The system more or less grew up with the airlines, and is not on a uniform nation-wide basis or even on a regional basis. The airlines are said to recognize the faults of the present system, and are expected to do further work to develop scientifically their tariff structure for the postwar period.

General opinion is, however, that now is not the time to attempt further revisions. Costs are fluctuating too rapidly, and other wartime factors would also interfere, it is felt.

In general, the eastern part of the country will benefit most from the decreases. Also, between competitive points cuts were larger than elsewhere.

It was estimated in Washington that the express cut will save shippers almost a million dollars a year. Estimates on passenger savings varied widely (United stated that its reductions would save passengers $1,600,000 yearly).

Although receiving consideration, half fares for children between two and 12 were not reinstated. Discounts on air travel card plans also remained suspended.

Some typical fares on Eastern are as follows: New York-Miami, reduced from $71.75 to $66.35, the new fare being 92.47% of the old; New York-New Orleans, $73.85 to $67.00 (90.72%); New York-Washington, $12.20 to $11.95 (97.95%), and New York-Atlanta, $48.15 to $43.85 (91.07%).

Some United changes were: New York-San Francisco, $149.95 to $138.85 (92.6%); Chicago-Seattle, $99 to $100 (101.01%); New York-Chicago, $44.95 to $38.85 (86.43%); New York-Denver, $96.42 to $85.25 (88.42%); Los Angeles-San Francisco, $18.95 to $17.10 (90.24%), and Seattle-Los Angeles, $62.93 to $50.90 (80.88%). As was the case with United's Chicago-Seattle fare, other companies also raised rates between some points to bring them in line with the uniform mileage tariff. This was done mostly on short hauls.

American reduced New York-Los Angeles fare from $149.95 to $138.85 (92.6%); New York-Ft. Worth-Dallas from $82.60 to $80.60 (97.58%) and New York-Memphis from $62.10 to $55.95 (90.1%).

TWA's New York-Pittsburgh fare dropped from $21 to $19.75 (94.05%); New York-Kansas City from $66.45 to $59.70 (89.84%) and New York-Cincinnati from $37.05 to $34.75 (93.79%).

Western reduced Salt Lake-Los Angeles from $34.75 to $33.15 (95.4%); Salt Lake-Lethbridge from $33.44 to $30.10 (90.01%), and San Diego-Great Falls from $66.60 to $59.90 (89.94%).

Some Braniff reductions were: Chicago-San Antonio, $61.85 to $59.50 (96.20%); Oklahoma City-Kansas City, $18.60 to $17.05 (91.67%) and Ft. Worth-Dallas to Oklahoma City, $10.95 to $9.35 (85.39%).

United's Ace: Karl P. Hughes (left) district traffic manager for United Air Lines at Washington, D. C., draws an ace in the drawing between United and TWA for counter space at the Washington National Airport. This formality followed the Civil Aeronautics Board's approval of UAL-TWA routes into Washington. Orme Grove (right), representing TWA, drew a king. John Groves, manager of the airport, held the cards.

Hester Represents C & S

Clinton Hester, first Administrator of Civil Aeronautics when the Civil Aeronautics Act was passed in 1938, has been appointed Washington general counsel for Chicago & Southern Air Lines. He has been practicing law in Washington since leaving CAA in 1940.

Safety Shutter: Photo above shows Capt. Edward F. Smith, senior pilot of Delta Air Lines (right) and an Army student pilot using the Safety Shutter, which permits the instructor in the right-hand seat to look through the vanes, while the student finds his vision blocked by the angle of the shutter and is forced to fly "on instruments." Capt. Smith invented the device.

'Planning Board' Charts Course American Airlines Will Take After the War

An American Airlines "planning board" is drafting the pattern for the course the airline will take after the war, the company announces. The board is composed of five representatives from key departments as follows:

Charles A. Rheinstrom, vice president—traffic, chairman; William Littlewood, vice-president-engineering; Hugh Smith, vice president-operations; C. W. Jacob, secretary; W. L. McMillen, director of economic planning.

E. J. Foley, assistant to the vice president-engineering, is on special assignment from the company's engineering department as assistant to the chairman of planning board.

Supplementing the main board are numerous sub-committees, set up to study specific problems and to report to the board on their findings and conclusions. Members of a research and planning group are: Chester May, cost analyst; A. D. Lewis, H. H. Whitehead, Guy Mitchell, and Arthur Marshall, analysts; and A. A. Paradis, librarian.

A terminal facilities committee is composed of: Glenn E. Markt, assistant director of the airways and airports division, chairman; Clinton A. Schofield, airways and airport division, vice chairman; George T. Rutledge, station operations, secretary; Barney Schaffer, engineering; L. Z. Arthur, traffic-cargo; E. J. McElroy, traffic-passenger; H. F. Palmer, station operations; Amos Clubert, vice-president-properties. Associate members of this committee are W. H. Miller, assistant director-flight operations, and H. E. Matheny, chief pilot.

Future aircraft committee: Dixon Speas, assistant to vice president-engineering, chairman; M. D. Miller, traffic-cargo; Theodore Gould, traffic-passenger; W. L. McMillen, economic planning; Ray Miller, maintenance; George T. Rutledge, station operations; and E. J. Foley, associate member.

Reservations and ticketing committee: Spencer Beman, traffic, chairman; Charles McKenney, traffic; Marjorie McGovern, traffic; E. G. Berbaum, communications; Clinton A. Schofield, airways and airport division; E. M. Cozzens, station operations; and M. Lemmon, flight operations.

(An Editorial)

The Real Answer

TWO powerful newspapers, *The New York Times*, and *The Washington Post*, have recently advocated a priority for air mail. It is good to have these strong editorial voices recognizing the air mail crisis and pleading for a priority system to keep the mail going through. Certainly some such system would be preferable to throwing off the mail as now happens, but a more sensible suggestion would be to return to the airlines all or part of the airplanes requisitioned by the Army last year. *Very few additional airplanes would be needed to erase the air mail bottlenecks*—far fewer than the public realizes. An airplane is an instrument of great potential utility; its speed makes possible a big transport job every 24 hours. The way to remove the air mail scandal is to put a few more airplanes in operation instead of having them wasted and sitting around on Army airports.

Railroad-Owned Bus Line Seeks Routes

Interstate Transit Lines, Omaha bus operators, have filed application with CAB for air routes totaling 7,018 miles (see tabulation in special insert for detailed routes).

The company, whose stock, except for directors' qualifying shares, is owned substantially 70% by Union Pacific Railroad and 30% by Chicago & North Western Railway, stated that it will use helicopters or similar aircraft with capacity for not less than seven passengers.

Another Surface Carrier Applies for Air Routes; Justice Dept. On Guard

Rio Grande Motor Way, Inc., Denver, Colo., filed application for extensive air routes with the Civil Aeronautics Board last fortnight, but the Department of Justice promptly asked permission to intervene in the case. The Department of Justice petition was in line with its policy of intervening in all applications filed with the CAB by surface carriers.

"The issue is raised in this proceeding whether competition of independent airlines will be so restrained that the Denver and Rio Grande Western Railroad Co., through its instrumentality, Rio Grande Motor Way, Inc., can establish a monopoly of air transportation," said the petition.

The Rio Grande Motor Way application specified the following routes:

1. Denver, Colo.-Los Angeles, Calif.
2. Denver, Colo.-Salt Lake City, Utah via Grand Junction.
3. Denver, Colo.-Salt Lake City, Utah via Craig, etc.
4. Craig, Colo.-Rifle, Colo.
5. Salt Lake City, Utah-Ogden, Utah.
6. Provo, Utah-Marysvale, Utah.
7. Denver, Colo.-Trinidad, Colo.
8. Pueblo, Colo.-LaJunta, Colo.
9. Walsenburg, Colo.-Gallup, N. Mex.
10. Durango, Colo.-Mesa Verde, Colo.
11. Leadville, Colo.-Sante Fe, N. Mex.
12. Grand Junction, Colo.-Durango, Colo.
13. Durango, Colo.-Albuquerque, N. Mex.
14. Pueblo, Colo.-Montrose, Colo.
15. Denver, Colo.-Estes Park, Colo.

All of the routes would be via intermediate points.

Airline Publicists: Publicity representatives of five airlines are shown in the above photo, taken in Washington recently. Left to right are Buell Patterson, American; William Key, Pennsylvania-Central; Joseph Ferris, Northwest; Byron MacDonald, National; Patricia O'Malley, TWA; George Bounds, Chicago & Southern; Ray Bell, PCA and Leo Baron, TWA.

Old Mail Pay Ordered

President Roosevelt has asked Congress to appropriate $364,432 to pay judgments of the Court of Claims in favor of airlines whose air mail contracts were summarily canceled Feb. 19, 1934 by Postmaster General Farley.

The court found that the lines were entitled to the following amounts: Pacific Air Transport, $59,519; Boeing Air Transport, Inc., $143,441 and $42,931; United Air Lines Transport Corp., $66,748 and $51,782.

Weather Bulletin Available

Civil Aeronautics Board has reprinted in bulletin form an article entitled "Thunderstorm Characteristics and Flight Procedures" by J. A. Browne, chief meteorology instructor, flight training school, Transcontinental and Western Air, Inc. Issued as a Safety Bulletin, copies are available from the CAB Safety Bureau in Washington.

Efficient Filtration, another Battle won . . .

THERE are many other aspects of battle than the clash of steel, artillery duels or fights to the finish in the air. Ask the engineers what it means to battle against the havoc wrought by torrential rains, hurricanes and those bitter enemies frost, ice and snow.

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WAL Still Hopes for Coast Route

Public Counsel Argues Against TWA; New Affidavit Enlivens Hearing

Western Air Lines' hope of getting a Los Angeles-San Francisco route was revived last fortnight when Public Counsel John H. Wanner came to the airline's defense at reargument of the coast case before the Civil Aeronautics Board.

Wanner declared that Western will cease to exist as a "competitor" and will become a "feeder" exclusively if denied a route between the coast's two largest cities.

"If the advantages Western Air Lines holds over Transcontinental & Western Air were seriously considered by the Board, they were not brought out in the decision granting TWA the coast route last May," said the public counsel. "Western must be allowed to grow if it is to maintain its position. It should not be barred from competition with major airlines and relegated to the role of feeder only."

He added that WAL's ability to concentrate on local traffic and not be subject to "through service" conditions, such as weather, was a point to be considered by the Board. He also observed that there are stations on the coast route which Western would serve but which United Air Lines, present Los Angeles-San Francisco operator, fails to serve.

The counsel opposed again granting TWA the coast route, which she held from May 10 to June 30 but over which she had not begun operations, "because TWA believes in diverting routes which are vital parts of the nation's air network."

"TWA intends to bend Route 37 (Winslow to San Francisco) over to Los Angeles," he charged. "If TWA were to extend Route 2 (New York to Los Angeles) from Los Angeles to San Francisco, that would be a different story. But she wants to twist Route 37, her only hope of ever competing with United as a transcontinental operator, into a dog leg."

Western may take its plea for a rehearing to the Supreme Court, Leslie Craven, counsel for the airline, warned. Craven presented a new petition for a rehearing based on the affidavit of Leo H. Dwerlkotte, executive vice president and acting chief officer of WAL, that on July 7, Clancy Dayhoff, western director of public information for TWA at Las Vegas, Nev., made the following statement to officials of the Chamber of Commerce of Las Vegas regarding TWA's acquisition of the coast routes:

"It is not abandonment (of Route 37: Winslow-San Francisco); it is temporary rerouting of the flight . . .

"TWA is not abandoning the route between Las Vegas and San Francisco. We propose under the CAB ruling to fly from here (Las Vegas) via Los Angeles, thereby giving Las Vegas another airline to Los Angeles and retaining San Francisco service. The new mileage is only 71 miles, or 24 minutes additional flying time.

"During the war, and until traffic loads warrant, we will not fly the direct, non-stop Las Vegas-Fresno-San Francisco route. However, we still retain franchise right on this airway. We will not fly the direct route because it is in the interests of the war effort to make every commercial airplane in this country operate where it will advance the winning of the war. In this case, our planes can do a better job between here, Los Angeles, and San Francisco."

Craven pointed out that the essential basis of the Board's denial of Western's application for the Los Angeles-San Francisco route, and the granting of the route to TWA, was that there is inadequate traffic from intermediate points to sustain the through operation of TWA over Route 37 to and from San Francisco and that it is necessary, consequently, that it serve Los Angeles in order to get its traffic support.

"TWA has no intention of abandoning Route 37," Craven declared. "This is subterfuge."

He warned the board that the Supreme Court, if given the facts of Western's plea for a rehearing, might reverse the CAB as it did the Interstate Commerce Commission in the Atchison, Topeka, and Santa Fe Railroad case in 1929.

TWA's counsel, George Spater, recalled that the so-called "Atchison Case" involved "rates, not routes." "Rates change from day to day, and are subject to change," said Spater. "Routes are more permanent. There is no basis for comparison between the Atchison case and this case."

Spater challenged a statement of Craven's that 90 per cent of the traffic between Los Angeles and San Francisco is local. "A study of fourteen flights made by United Air Lines between Los Angeles and San Francisco in one day revealed that only four were purely local," he said. "Purely local traffic on this route would never survive."

Spater, charged that WAL had made efforts to "stir up resentment" against TWA in Las Vegas, Nev. He presumed that the affidavit introduced by Craven "was inspired in a bar." Under questioning by CAB Member Harllee Branch, Spater admitted that in a previous appearance on the Coast Case he said Route 37 would be abandoned.

Spater told the Board that if the value of a transcontinental route is based on whether or not it serves local traffic "you may as well wipe all the big transcontinental routes off the map." He pointed to a large, sparsely settled area in the southwestern states where TWA's local traffic is negligible.

Counsel for United Air Lines, Paul M. Godehn, warned the Board that "every decision you make today may make work for you tomorrow." Contending that neither Western nor TWA should be granted a Los Angeles-San Francisco route, Godehn declared that if the Board should adopt the philosophy of creating competition wherever an abundance of traffic exists "you will have difficulty preventing multiple operation on many routes throughout the country."

"The Board should not permit parallel operation unless it is proven that the existing carrier is failing to give service as good as any in the country," he said: "United and Western now enjoy a cooperative relationship. They are virtually partners. Western gets 40 per cent of its business from United. This friendly relationship should not be destroyed by making Western a parallel competitor of United's."

Braniff Stockholders to Vote on Increasing Stock

Braniff Airways, Inc., has called a special meeting of stockholders in Oklahoma City Aug. 19 to authorize an increase of the company's common stock from 400,000 to 1,500,000 shares.

T. E. Braniff, president, said the company is considering using some of the new shares as a stock dividend and has entered an agreement with F. Eberstadt & Co., for the sale of 400,000 shares, subject to stockholder action. It is expected a registration statement will be filed shortly with SEC.

Airline Personnel Managers in Session

Among those attending the recent meeting of the Airlines Personnel Management Association in St. Paul, Minn., were, left to right, Russell Ahrens, United Air Lines; Victor Vernon, American Airlines; L. M. Reid, Transcontinental & Western Air, Inc.; and Linus C. Glotzbach, Northwest Airlines.

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*THE SHOCK ABSORBING UNITS ON AN AIRPLANE'S LANDING GEAR; THE NAME IS DERIVED FROM THE WORDS "AIR" AND "OIL"—THE FLUIDS USED TO DISSIPATE THE LANDING SHOCKS

Airline Commentary

The flow of airplanes from the Army back to the airlines is only a trickle, at least so far . . . In May, the Postmaster General announced that six would be returned . . . These have finally been allocated: American, TWA, Northwest, PCA, Delta and Western each receive one . . . Mid-Continent is getting two Lodestars back and National recently got a Lockheed off the production line . . . This latter development is viewed as significant . . . Look for Col. Francis Butler, formerly with Air Transport Command, to play a big part in plane allocations . . . He recently transferred to a new Army job, which will be announced shortly . . . Before entering the Army, Col. Butler was Northwest Airlines' capable attorney . . .

●

Hats are off throughout the industry to Continental Air Lines for being a swell host to the Air Traffic Conference meeting at Denver in late July . . . Terrell Drinkwater's outfit did itself proud. . . .

●

The press conference held last fortnight in Washington by 16 domestic airlines to announce their policy on postwar global air routes really drew a crowd . . . The Carlton Hotel's banquet room was filled to capacity . . . We thought Sam Solomon, Northeast president and spokesman for the airlines, did a swell job of answering the newsmen's questions, some of which were pretty tough . . .

●

The steady stream of applications for new air routes is almost unbelievable . . . A day doesn't pass anymore without CAB receiving at least one . . . We've been spending most of our waking hours recently in the Board's docket section compiling the list of new routes printed elsewhere in this issue . . . Finally we finished it in the wee hours of the morning . . . At 10 o'clock the next morning it was incomplete—two more applications had been received . . . One lady recently wrote to CAB and wanted to know all about how to file an application to get into the airline business . . . Among other things she wanted to know what kind of guarantees were necessary and how much convenience and necessity she had to have . . .

●

Speaking of new routes, we hear that the Pennsylvania Railroad has been making quiet inquiries . . . And also that Washington's own Capital Transit Co. has helicopter ideas. . . . This should draw caustic comments from some of the company's less satisfied riders . . .

●

Capable Ralph Damon has returned to American after doing a swell job as president of Republic Aviation . . . With postwar plans being discussed, the airline industry will benefit by his return . . . We also note that John Slater has resumed duties as executive vice president of American Export Airlines after helping the government with the shipping situation . . .

●

Watch for CAB activity to pick up, come September . . . The all-important feeder investigation, New York-Boston cases and the Panagra investigation are all scheduled for that month . . .

●

After two rides in an airport limousine in the midwest recently we're seriously considering opening a limousine passenger insurance bureau . . . After weaving in and out of traffic, daring a couple of street cars to hit us, and listening to the passengers' comments, we think there's a market for it . . . We'll also recommend seat belts . . .

●

One of the most nicely-piloted flights we've been on recently was with United's Captain L. C. Brown (it was NY-CG, June 27, Captain) . . . As is the case with all airline pilots, he was cautious, skirting the thunderstorms, throttling back for the bumps, thinking of the passengers' comfort . . . And his landings were a thing of beauty . . . Passengers are inclined to snort when there's a rough landing, when the plane's late, or when something else is wrong, so we think it's about time someone complimented a pilot for a *good* job . . .

●

Credit American with ringing the bell with its recent publication entitled "Make Friends With Mexico" . . . It's a complete, interesting, informative booklet . . . It should be read regardless of whether or not you're planning a trip to Mexico . . .

—E. B.

Pan Am Could Triple Business With More Planes, Trippe Says

If Pan American Airways had been able to get delivery on four-engined flying equipment ordered before the war, the company would have been able to triple even its present traffic, Juan T. Trippe, PAA president, told stockholders at the annual meeting in Jersey City on July 15.

Military necessities prevented the company from getting the 57 four-engined planes ordered before the war, Trippe said. PAA had planned to acquire 40 Lockheed Constellations and some DC-4s.

In addition to tripling traffic, the PAA president said that 10-hour flights from New York to London at a fare of $100 would now be possible, and that flying time to Latin America could have been cut 50%.

Trippe also told stockholders of the role played by PAA in helping the Rubber Reserve Corp. in South America.

President of Panagra is Decorated by Ecuadorian

Harold J. Roig, president of Pan American-Grace Airways, recently was presented the National Order of Merit of Ecuador, which was founded by the liberator Simon Bolivar and is awarded to nationals and foreigners for "outstanding civic merit."

Roig

Presentation was made at Quito during one of Roig's inspection tours of Panagra routes. President Arroyo del Rio of Ecuador termed him "one of the great pioneers of good Neighbor Policy." Ecuador has been served by Panagra routes since 1930.

Northwest Gets Plane

The Air Transport Command on July 15 returned to Northwest Airlines one of the Douglas DC-3s requisitioned last year for war-time service. In returning the plane, Maj. Gen. H. L. George, ATC commanding general, cited "the critical need for additional air transportation" between Chicago and Seattle. Decision to return the plane followed a recommendation by CAB after consultation with the Post Office Dept. NWA will add a third Chicago-Seattle round trip and an additional Chicago-Twin Cities flight.

Reservations Controlled

Trans-Canada Air Lines has set up a central reservation control office at Toronto, through which all messages relating to the assignment of airplane space and the handling of passengers flow. In one day, recently, the office handled 2,100 telephone calls and 6,400 teletype messages.

16 Lines Adopt Postwar Air Policy

(Continued from page 15)

plenty of competition from foreign operators.

Pan American and Export, while participating in early discussions, had not expressed opinions at the time of the press conference, according to Samuel J. Solomon, president of Northeast, and spokesman for the airlines.

A partial text of the announcement released at the conference follows:

"The declaration of policy, drafted during a 5-day conference of airline presidents in Washington, was presented to the Civil Aeronautics Board as a supplement to answers given recently to that body in response to its questionnaire. The executives declared that the nation requires and must have a comprehensive world system of air transportation linking all sections of the U. S. with major trade areas of the world if we are 'to meet with the requirements of the domestic and foreign commerce of the U. S., the Postal Service and the national security.' Given the opportunity, the airlines, which today are carrying on world-wide operations for the military forces, will serve civilian needs abroad on an expanding scale immediately after the defeat of the Axis powers in Europe, confreres pointed out. They said their companies 'are now flying in the war effort with excellent records of performance under contract with the armed forces to all 5 continents of the world over tens of thousands of route miles.'

"Of the need for a high-speed service to carry medical supplies and other emergency items to starving and war-torn countries, the group declared that the 'establishment of a system of air transportation along sound lines will and must be a powerful factor in rehabilitating and readjusting the battle-torn economy and commerce of countries both large and small, whether Allied, Axis or neutral and serve as a dominant influence for a lasting peace.'

Network Proposed

"To meet future needs for an adequate U. S. air transportation system, the airlines proposed a network of routes extending: (1) Between cities of the East Coast of the U. S. and Canada, certain Atlantic Ocean Islands, South America, the British Isles, Northern, Central and Southern Europe, the Mediterranean area, Africa and Asia. (2) Between cities on the West Coast of the U. S. and Canada, certain Islands in the Pacific, New Zealand, Australia, Alaska, Russia, Japan, the East Indies, China and Asia. (3) Between cities on the Northern boundary of the U. S. and Canada, Alaska, Russia, East Asia, Japan, the Philippine Islands, the East Indies, Northern and Central Europe, the British Isles and Asia. (4) Between cities on the Southern boundary of the U. S. and Mexico, Central America, Islands of the Caribbean, the Canal Zone, South America and Africa.

"The airlines agreed that the allocation of specific routes to individual carriers was a matter for the CAB to determine 'under the Civil Aeronautics Act and within the limitations of the commercial rights acquired by the U. S. in its negotiations with foreign countries. Adequate airport facilities to support such a net work were said to be available.

'The U. S.,' the operators stated, 'has spent hundreds of millions of dollars on airport and other air navigational facilities throughout the world which in a large measure may be expected to become available to U. S. flag air carriers and air carriers of other countries after such facilities have served the military purposes for which they were constructed. Even though the sovereign rights over such facilities may rest with the nations in which they are located, the right of transit and in many instances commercial rights, should be preserved for such U. S. flag carriers.'

"Any policy of monopoly was condemned, the group stating firmly that 'without question, in air transportation where boundaries become meaningless, there can be no rational basis for permitting air transportation within the country to develop and expand on a competitive basis and that outside the country, left to the withering influence of monopoly.'

Operators' Rights

"The airline heads recognized the necessity of giving certified operators the right of free passage across foreign countries by declaring: 'If today, in the war effort it is necessary for military aircraft to fly through the air space over foreign countries together with the right to land for refueling and other technical purposes, that right of transit will be equally if not more important in the reconstruction period that must follow the declaration of peace. Commercial outlets, which are the desire of every country to acquire for itself in other countries, will be seriously impaired unless the right of transit is fully recognized. Consequently, in the arrangements which this government will undertake with foreign governments, the right of innocent flight is the keystone for the development of all countries of their foreign air transportation routes and of international good-will and understanding.'

"The conference disclaimed any intention to deny reciprocity rights to foreign-flag operators, characterizing as 'self-evident,' the need of 'recognizing the basic policy of the reciprocal right of innocent flight and of negotiated commercial air rights. Unless the right of innocent flight (the freedom of civil and commercial passage through the airspace of another country) is fully recognized by this country as well as other countries, the boundaries of each will be as formidable as have been the barriers of the oceans and the mountains to surface carriers.'

"One of the major objectives in developing an international air policy now, it was pointed out, is to 'provide employment to as great an extent as possible for the men of the armed forces who will return to civil life upon the cessation of hostilities and to the hundreds of thousands now engaged in aircraft and production.

"'By outlining now the objectives of the signatory airlines,' it was said, 'it is believed that if these proposals receive favorable consideration, a maximum employment opportunity can be created with the airlines of the U. S. and manufacturers will be provided with information as to the requirements of the types of aircraft to come and thereby provide continued sources of employment of persons engaged in the manufacture of aircraft. Certainly, the government is interested for both civil and military reasons, in encouraging and fostering the manufacturers of aircraft and aircraft equipment.'

"The air transport operators emphasized that competition has been a 'traditional policy' of this country and that this is essential to air transportation's 'proper growth and development. The domestic airlines of the U. S. have grown strong with healthy regulated competition. U. S. flag air carriers can become similarly strong in competition on foreign routes and with airlines of other countries. It is a recognized fact that personal initiative and creativeness are in direct ratio to the reward offered to the individual whether in the form of monetary or positional recognition. Private ownership in industry also necessarily forms the greatest outlet for the private capital of the U. S. which must (after the war) be employed in enterprises that in turn will employ those returning to civil life from the armed forces.'

"Citing a wide array of mechanical and technical developments the domestic airlines have contributed to aviation, the operators in strong language emphasized that these achievements 'were accomplished under the traditional American system of open and free competition. The signatory airlines believe and insist that it is one of the basic principles that must be adopted and underlie the establishment and operation of U. S. foreign air routes if the continued progress of civil aviation, its particular technique, the growth of U. S. foreign commerce, an adequate system of national defense and maximum efficiency in the U. S. aviation industry are to be maintained and developed.'"

Answers Questions

In answer to questions, Solomon said that, to his knowledge, there was no airline whose ambitions do not extend beyond the United States.

Asked whether Pan American did not have exclusive agreements with 40-odd countries and whether these agreements could be broken by the government, Solomon said he did not believe PAA or any other company would stand in the way of expressed wishes of proper agencies of government, if more service was needed to such countries.

Agreements with foreign countries will have to be negotiated by this government and while these agreements will be reciprocal in many instances, this may not always be the case, he asserted.

Members of the airline committee formulating the policy were Solomon, Jack Frye, president of TWA; Paul Brattain, vice president of Eastern; Croil Hunter, Northwest president and C. Bedell Monro, PCA president.

UNDER the cover of military secrecy, a picture of the post-war world is developing. New discoveries in food processing, medicine, chemistry, electronics, aviation, and transportation are taking form on the sensitive film of global war.

What it will be like to live in the post-war world is known in part to some men — in total to none. Only when the people of the earth once more have the opportunity to exchange ideas, will we know what the whole picture will be.

And this exchange of ideas will not come about until travelers of all nations can cross frontiers in speed and safety . . . when goods can be shipped freely from country to country . . . when transportation has a new chance to show what strides it has made.

Fleetwings, by building planes and plane parts for United Nations' finest aircraft, has earned an important place in America's transportation future. Along with tremendous production of fighting equipment, Fleetwings, on its designing boards, is storing up ideas and planning for a new, exciting age of travel which will compress the oceans and expand the potentialities of the individual citizen.

FLEETWINGS

Division of Kaiser Cargo, Inc.
BRISTOL · PENNSYLVANIA

Plant No. 1

Aircraft Parts from America's New Source of Aluminum

To the aircraft industry, Reynolds means complete Service in Aluminum. Reynolds mines its own bauxite, processes the ore into finished aluminum and then carries the service through to the final vital operation—*fabricated parts for planes.*

Reynolds was the first to produce high grade metal from lean domestic ore and was the first aluminum company to fabricate finished airplane parts.

Now Reynolds is mining more bauxite than was mined in the entire country before the war, converting it into hundreds of millions of pounds of aluminum for aircraft. The Parts Division in Louisville, expanded 40 times, has thousands of workers and batteries of machines on 24-hour schedules.

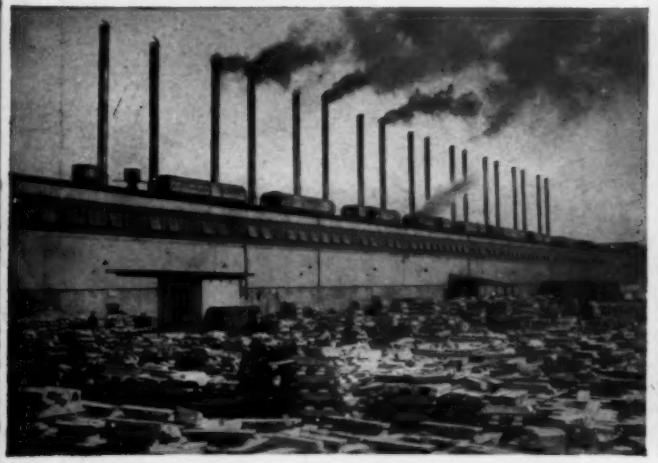
Scrap from fabricating operations (average 30 percent) stays at Reynolds plants, where it is put right back into production. This eliminates scrap headaches for aircraft manufacturers . . . *saves manpower, plant space, freight facilities . . . and keeps inventories down!*

The foresight and courage that created America's New Source of Aluminum has developed the aircraft industry's new source for finished parts. Reynolds Sales Engineers are available throughout the United States.

REYNOLDS METALS COMPANY • PARTS DIVISION • LOUISVILLE • KY.

AMERICA'S NEW SOURCE OF ALUMINUM

INGOT • SHEET • EXTRUSIONS • WIRE • ROD
BAR • FORGINGS • TUBING • FOIL • POWDER



3 Aluminum ingots, outside Alabama plant, are fed into remelt furnaces with alloying metals. Resulting alloys are cast into billets.

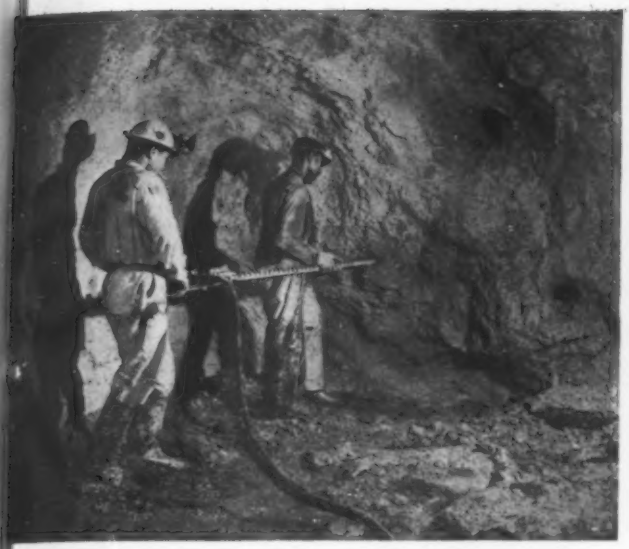
4 Reynolds rolled aluminum alloy forging stock, tested and inspected, ready to be forged into aircraft propellers.

7 Reynolds Parts Division Shearing Line, capacity 4,000,000 lbs. of sheared skins monthly. All skins Navy inspected.

(No Scrap Problems)

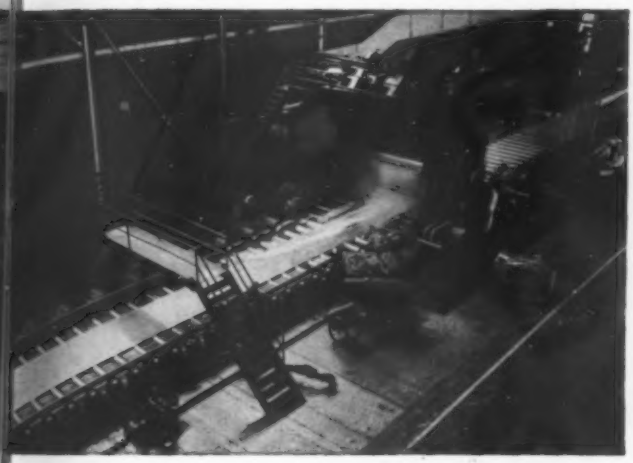
8 Reynolds Router and Stack Drill Department, section of the 250,000 sq. ft. expansion of the Parts Division in Louisville.

(No Scrap Problems)

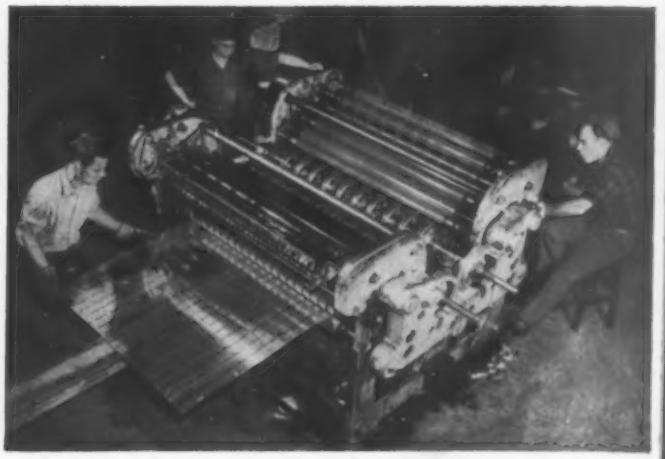


1 Reynolds Aluminum and finished parts start in this Arkansas bauxite mine. Reynolds mines more bauxite than was ever mined in the U. S.

2 Reynolds refines bauxite into alumina; reduces alumina into aluminum; aluminum is cast, alloyed and fabricated into sheet and rod.



5 Reynolds huge "4-high" hot mill, rolls billets under tremendous pressure into long ribbons of gleaming aluminum alloy sheets.



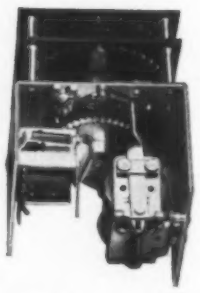
6 First automatic stenciling machine in the Aluminum Industry, developed by Reynolds, permitting closely printed alloy, gauge and temper lines to insure precise identification.

9 Inspection of finished parts — blanked, formed, heat treated, anodized, zinc chromate primed, ready for aircraft assembly lines.
(No Scrap Problems)

RELAYS *by* GUARDIAN

★ Instantly responsive . . . accurate far beyond the limitations of human eyes and hands . . . "Relays by Guardian" served in peacetime as "nerve centers" for intricate business machines. Today, in wartime, they help guide the plane to the target and release the bombs in a predetermined pattern.

The Series R Stepping Relay is typical of units used in aircraft and automatic business machines. It is a versatile relay affording innumerable circuit control combinations. The contact finger will rotate clockwise, counter-clockwise, or in both directions, and may be electrically reset. Four fingers may be used on a single disc relay or two fingers per disc if two discs are required. Standard power requirements are 29 volt-amperes on AC and 14 watts on DC. A request on your business letterhead for Series R Bulletin will bring you further information.



Series R Stepping Relay

GUARDIAN ELECTRIC

1608-H WEST WALNUT STREET CHICAGO, ILLINOIS

A COMPLETE LINE OF RELAYS SERVING AMERICAN WAR INDUSTRY

Organized Lobbyists of Railroads Called Menace to Aviation

Surface carriers are "weaving a pattern of encroachment" that seriously threatens the economic future of commercial aviation, C. Bedell Monro, president of Pennsylvania-Central Airlines, charged in an address before the Aeronautic Association of Boston last fortnight.

Monro characterized efforts of organized lobbyists of the railroads, "who scoffed at aviation for years until they suddenly realized its potentialities", as a menace to aviation.

"With the consciousness of air potentialities brought to the nation by the achievements of American aircraft in combat, and the enormous strides made in the delivery of supplies and weapons by air, surface carriers have suddenly been aroused from a generally somnolent state and now want to play in a game which they previously considered with contempt," said the PCA president.

"Since existing aviation legislation can be interpreted to prohibit such a move, pressure groups have started their work to influence pending legislation. These groups are headed by the railroad lobby, one of the most powerful lobbies in this nation."

Monro outlined the historical background of surface transport and air transport, declaring that surface carriers, with rare exception, scoffed at air carriers in the long and costly years of pioneering in the skies.

"Suddenly, aviation has become a horrid menace to surface carriers," he said. "They claim their only hope of existence is the establishment of air transportation divisions. They paint heart-rending pictures of harbors clogged with idle ships, great packs of rusting busses and trucks, Pullman cars used as lunch wagons. By this, they show their lack of knowledge of air transportation and its future—and its limitations."

Monro declared it is inevitable that there will be a vast increase in the passenger and express business of airlines after the war, "but within certain limitations." He pointed to the difference in the cost of air express at 60 cents per ton mile, as against a rail expense average of 15 cents, a freight average of one cent, and a motor carrier average of two cents. The air costs will be lower, but in the near future will not approach the rail or motor averages, he said.

"The horizontal monopoly of surface carriers would be destructive to development of free competition," Monro charged. "For the good of the nation, carriers should compete in their own fields, for only in that way can the nation attain the balanced transportations which it will require for the great world of the future and for the protection that this war has shown is vital to the safety of the people."

Denver-Amarillo Line Started

Braniff Airways, Inc., was prepared to start service Aug. 1 on its recently authorized route extension from Amarillo, Tex., to Denver, Colo., on route No. 15, the company announced. Stops will be made at Pueblo and Colorado Springs.

Traffic

UNITED AIR LINES in May operated 564,928,000 express pound miles and 1,501,245,000 mail pound miles.

AMERICAN AIRLINES express figures for the first five months of 1943 show an increase of 106.9 per cent of the total express carried during the same five months in 1942. Air mail increased 85.1 per cent. Herbert Ford, traffic manager for the airline in Washington, said the increases were the result of pressing wartime needs in industrial centers along American's transcontinental and other routes.

DELTA AIR LINES reports that although it had fewer planes, it handled more passenger, air mail, and air express business during the first six months of 1943 than in the same period last year. Air mail increased 171.9; air express, 129.3 per cent. The airline flew 18,593,810 revenue passenger miles to date this year, compared with 16,338,965 during the corresponding period of 1942. The average passenger haul was 360 miles in 1943 against 291 in the previous period.

RAILWAY EXPRESS AGENCY (Air Express Division) announces an increase of 60.9 per cent in air express tonnage for the first three months of 1943. A total of 6,267,107 pounds was handled during the three-month period, compared with 3,892,920 pounds in the similar 1942 quarter. The number of air express shipments in the 1943 quarter was 347,951, an increase of eight per cent over 1942. Gross revenue of air express cargo was up 57.6 per cent.

TRANSCONTINENTAL & WESTERN AIR, Inc., reports that preliminary figures for May show an increase over May of last year of 93 per cent in air mail poundage and 79 per cent in express poundage with respective totals of 1,488,899 and 637,637 pounds. The miles of mail and express flown totaled, respectively, 559,786 and 259,912.

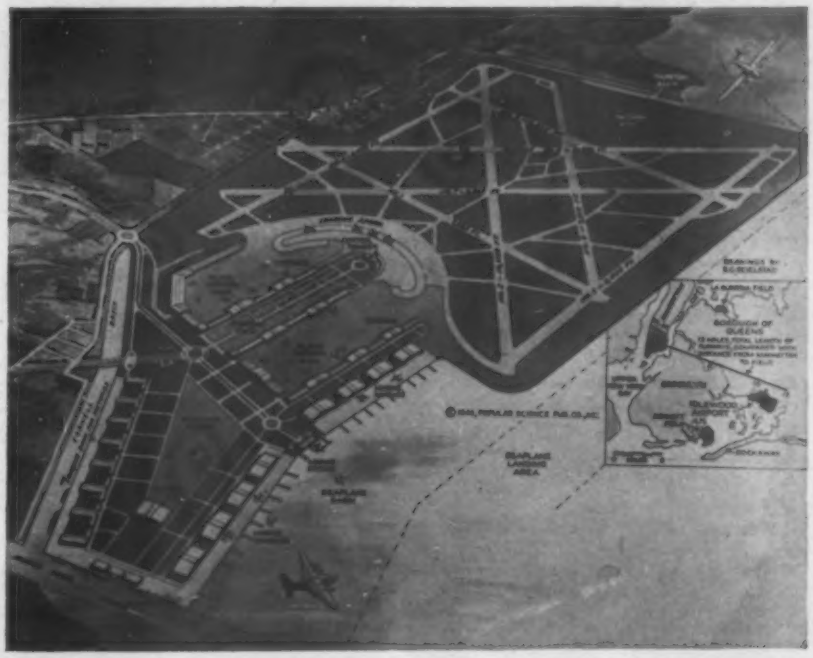
TRANS-CANADA AIR LINES carried air mail in May almost double the amount carried in the corresponding month last year. The volume jumped from 166,420 pounds in May, 1942 to 313,786 pounds this year. The number of passengers increased from 9,549 to 12,242. Express was more than doubled, from 22,184 to 57,223 pounds.

CONTINENTAL AIR LINES' June passenger revenue showed a 21 per cent increase over May. The number of passengers carried was up 20.5 per cent. Many of Continental's air express rates for the transportation of cargo within the United States were reduced as much as 12½ per cent July 15, Paul J. Carmichael, general traffic and cargo manager, reported.

UNITED AIR LINES announces a gain of 34 per cent in revenue passenger miles flown during June as compared with the same month of 1942. United flew approximately 31,370,700 revenue passenger miles during the month as against 23,494,289 in June, 1942. The company also announced an increase in air mail pound miles of approximately 42 per cent in June as compared with the same month last year. Express pound miles decreased 10 per cent under the corresponding month of 1942.

MID-CONTINENT AIRLINES, INC., during April operated 532,286 revenue passenger miles, carried 52,757 mail pounds and had a total of 1,688,334 express pound miles.

Construction of Idlewild Airport Progressing



Construction of Idlewild Airport, designed to be the largest in the world, is progressing rapidly on Jamaica Bay, 13 airline miles from Manhattan. New York City's new municipal air terminal is expected to handle nearly 1,000 flights daily of all types of aircraft. Already, enough sand to fill a city block a mile high has been taken from Jamaica Bay to form the foundation for the huge air base. Thirteen miles of runways, some of them 10,000 feet long and 200 feet wide, will support landings and takeoffs of passenger and cargo planes weighing 150 tons. A pair of runways will be laid in each of four wind directions, allowing for simultaneous takeoffs and landings of more than one plane. Space is being allowed for helicopters. This drawing, from a scale model, gives an idea of the magnitude of the huge project.

Personnel

Transcontinental and Western Air, Inc., announces that **Clarence Olson,** who has been mail and express traffic manager for its New York district, has been appointed Central regional mail and express traffic manager with headquarters in Chicago. **Kenneth R. Rearwin,** sales manager and assistant to the president of Commonwealth Aircraft, Inc., has been appointed assistant to the treasurer of TWA. **Robert S. Hogueland,** a Kansas City attorney, has joined TWA's staff in Kansas City as assistant to **L. M. Reed,** personnel director.

H. Read Cooley has been named New York publicity representative for American Airlines, Inc., and **Arthur M. Marshall** transportation engineer of Springfield, Mass., has become an analyst in the company's department of economic planning in New York. American also announces appointment of **W. J. Weinert** as New York representative for air mail, air express, and freight, and Jack Adams of Los Angeles, Cal., as publicity director of the airline's Western region.

W. P. Gillen, New Orleans district traffic manager of the Chicago and Southern Air Lines, has been named to succeed **William C. Burks** as Chicago district traffic manager for the firm. **F. W. Wildman,** manager of the special investigations and analysis division of Dun and Bradstreet, Inc., for the Memphis, Tenn., district, has been appointed assistant to the president of Chicago and Southern.

Northeast Airlines, Inc., announces that **W. C. Bowman,** formerly territorial supervision of the Scintilla Magneto division of Bendix Aircraft Corp., has been named assistant superintendent of maintenance for both the North Atlantic and commercial divisions of the company.

Dorothy Diemer has been appointed chief hostess of Mid-Continent Airlines, Inc. She was formerly a TWA hostess. **Capt. W. D. Warren,** veteran military aircraft test pilot, has been appointed chief pilot of and director of training for Mid-Continent.

Colonial Airlines reports that **Howard A. Tinkle** and **Robert Silver** have been promoted to captains.

Western Lines, Canadian Pacific Air Lines, announces that **R. W. Ryan** has been appointed supervisor of operations. He was formerly manager of No. 3 Air Observer School in Regina, Sask.

Clifford E. Roberts is the newly appointed district manager of Pan American Airways at New Orleans, La., having left a similar position in New York.

Harry W. Hayter has been named operations manager of Transportes Aereos Centro Americanos. He will be based at San Jose, Costa Rica, but will also supervise operations out of Miami, Fla.

Pennsylvania-Central Airlines announces appointment of **William G. Key,** formerly city editor of the Atlanta Constitution, as assistant to Ray Bell, PCA's director of public relations.

Western Air Lines announces the following appointments **Mary Ann Fisher,** WAL counselaire, to manager of traffic office at Butte, Mont.; **Ann M. DaCosta,** Los Angeles insurance underwriter, to supervisor of the company's insurance department; **Mason Mallory,** traffic representative in Los Angeles, to city traffic manager at Las Vegas, Nev.

Continental Air Lines Cuts a Cake

Terrell C. Drinkwater, executive vice-president of Continental Air Lines, is shown cutting a cake on the occasion of Continental Air Lines' completion of nine years of service to the West and Southwest. Hostess Ligea McCracken is holding the cake, while four of CAL's original eight employees look on. The four veterans are, left to right: Flight Capt. Jess E. Hart; Flight Supt. Don Davis; Idalene O'Neil, assistant secretary; and W. T. Robertson, Jr., crew chief.

Fisher

Da Costa

Weinert

Hogueland

Warren

Diemer

Rearwin

Olson

Training planes "stood up" for these Christenings

Back of the boys with the wings are the training planes that nursed them along through some trying times.

The great trainers that have helped build our air force don't get into the headlines, but they have a favored spot in the hearts of America's pilots. When the experienced flyers look back, they salute the PT's and BT's and AT's for the beatings they were able to take.

Yes, the trainers have to be tough to take the rough spots off our future aces.

Aero-Quality Lumarith is just as proud of its use on training planes as on any fighting ship ever built. The high impact strength of Lumarith transparent panels for cockpit enclosures has been adding stamina to these important planes.

Celanese Celluloid Corporation, *The First Name in Plastics*, 180 Madison Ave., New York City, a division of Celanese Corporation of America Sole Producer of Lumarith* and Celluloid* plastics . . . *Representatives:* Cleveland, Dayton, Philadelphia, Chicago, St. Louis, Detroit, Los Angeles, Washington, D. C., Leominster, Montreal, Toronto, Ottawa.

LUMARITH*

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SOCIETY:
ZEKE MILLERS VISIT SHANGRI-LA
(Special by Radioelectronophone)
Residents of our city have received word that the popular Mr. and Mrs. Zeke Miller, of 1946 Main Street, who left town several days ago, are now enjoying the sights and sounds of Shangri-La.
As usual, the Millers are taking a "flying" vacation and expect to be at home again next week, after visiting several other places of interest along their air route.

In the tomorrow that is nearly today,

you, too, will casually vacation in spots that could

not even be found on the map

yesterday. Your world will grow immeasurably as the airplane

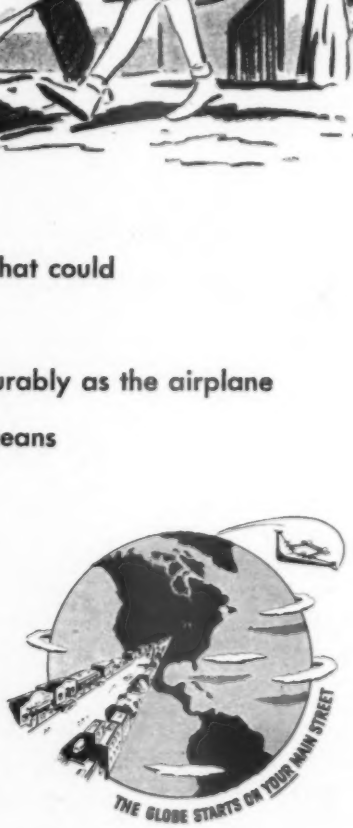
turns miles into minutes, continents and oceans

into hours.

PRESIDENT

BRANIFF *Airways*

Chicago, Burlington, Kansas City, Wichita, Ponca City, Oklahoma City, Dallas, Ft. Worth, Houston, Galveston, Amarillo, Wichita Falls, Austin, San Antonio, Laredo, Corpus Christi, Brownsville, Denver, Pueblo, Colorado Springs.



Guatemalan Airline Is Not Controlled by PAA, Examiner Says

Aerovias de Guatemala, S. A., Guatemalan airline, is no longer controlled by Pan American Airways, the control having been eliminated principally by reduction of PAA stock ownership in the company, CAB Examiner J. Francis Reilly stated in a recent recommendation to the Board.

On Apr. 21, 1942, Reilly had found that PAA controlled Aerovias, owning 40 per cent of the stock. Since then, however, Alfred E. Denby, Aerovias president, has purchased 150 of PAA's 300 shares, reducing ownership from 40 per cent to 20 per cent, Reilly said.

"Thus Denby now owns approximately 60 per cent of Aerovias' issued stock, Pan American approximately 20 per cent and about 19 per cent is held by various individuals," he stated. "Only five shares of Aerovias' authorized stock is unissued. . . .

"It is apparent that Pan American's approximately 20 per cent stock interest in Aerovias is insufficient to prevent Aerovias 'from either holding ordinary meetings of its stockholders or takng valid action at such meetings."

Aerovias, Reilly said, recently established extensive overhaul and maintenance facilities in Gautemala, and now has its engines overhauled by Curtiss-Wright.

Aerovias' balance sheet for Feb. 28, 1943. "reflects its strong financial position," the examiner said. It showed cash on hand of $115,000, $64,000 accounts receivable and reserves of $231,000. At a stockholders' meeting on Apr. 7, 1943, a dividend of $100 per share was declared, payable May 1. Payment of the dividend out of current cash on hand leaves about $40,000 in that fund.

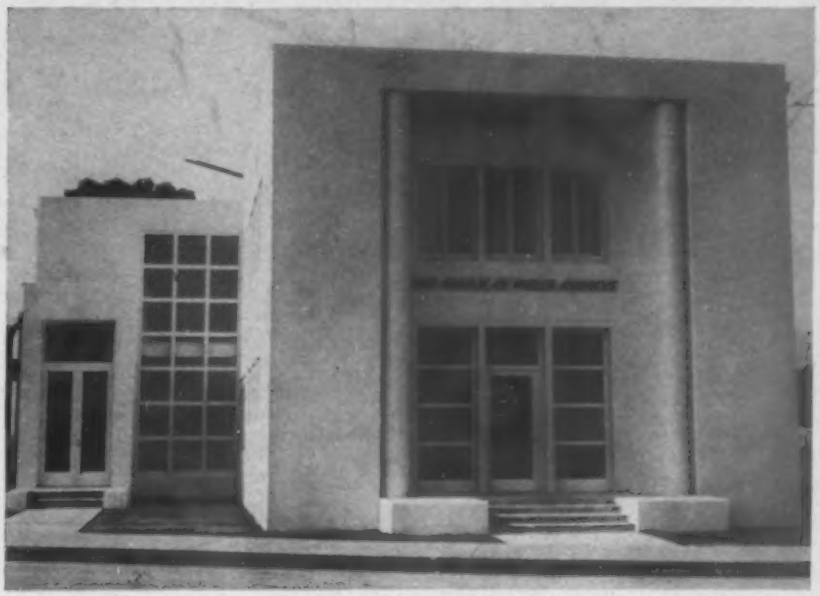
Approximately $34,000 is owed by Aerovias to PAA, $16,000 of which is for overhaul, the balance being principally for fuel and oil.

PAA had guaranteed a personal unsecured loan of $30,000 by Denby from a New York bank, with the provision that PAA would hold certain of Denby's stock as security and that the voting rights of such stock would be vested in the president of Guatemala. Denby, however, has continued to vote this stock without objection from PAA, Reilly said. Denby still owes $20,000 and PAA holds 200 shares of his stock, but Denby told the examiner that he is able to pay the loan on immediate demand.

Propeller Service Equipment Manufactured by Coast Firm

Manufacture for prompt delivery of the complete line of service and assembly equipment for the Curtiss Electric propellers has been announced by Pacific Airmotive, Manufacturing Division, Burbank, Calif. The company has been making and supplying Hamilton Standard units for assembly and service and the addition of the Curtiss line is said to enable the company to offer equipment to meet all propeller problems.

Pan American's International Air Terminal



This is Pan American Airways' new International Air Terminal Building at Burbank, Cal. It was dedicated July 9 with ceremonies headed by Gov. Earl Warren of California and consuls of Latin American countries. The terminal now serves as port of entry for passengers, mail and express between the West Coast and Mexico, Central America, and South America, supplanting former operations from Grand Central Terminal in Glendale, Cal.

Walton Named Airport Head

S. J. Walton, since last August unofficially acting manager, is reported full manager of Memphis, Tenn.'s Municipal Airport. With the airport since 1937, Walton most recently served under H. E. Brooks, who resigned last summer. N. E. Long and E. P. Davis have been named assistant airport managers and clearance officers.

Northwest Files

Northwest Airlines, Inc., has filed application with the Civil Aeronautics Board for an air route between Seattle, Wash., and Victoria, B. C., via Port Angeles, Wash.

Hawaiian A. L. Gets Space

A former Dept. of Public Works building at John Rodgers Airport, Honolulu, has been leased by Hawaiian Airlines, Ltd. The building provides space for the company's operations manager, personnel director, superintendent of flight operations, assistant to operations manager, hostess department, clerical-stenographic staff and conference and lecture rooms. Alex Smith, formerly on the staff of the Military Governor, has been appointed personnel director. Charles I. Elliott has been promoted from Chief of Operations and Chief Pilot to Operations Manager. Bertram J. Hogg has been named Chief Pilot. Osborn McCraw, assistant to the operations manager, has been appointed chief dispatcher and superintendent of stations.

Air-Sickness Almost Gone From the Airways

Only one airplane passenger in 1,000 suffers from air-sickness, which thus virtually has disappeared from the airways as a source of discomfort in flying, it is disclosed by a United Air Line study.

Figures released by Col. A. D. Tuttle, director of United's medical department, covering a five-year survey of discomfort causes among passengers carried by United, revealed that the air-sickness rate steadily has been reduced from 3.3 per 1,000 passengers in 1938 to one per 1,000 in 1942. He further disclosed that other causes of discomfort also have been decreasing to the point where less than five in 1,000 passengers give evidence of any discomfort whatever.

Here are his findings: only one person in 1,000 suffers from the effects of altitude and has to take oxygen, which is provided on all planes; only one in 1,800 has ear trouble; only one in 2,500 suffers from nervous unrest; and only one in 1,000 indicates other miscellaneous discomforts.

United's survey of 2,248,998 passengers carried in the years 1938 through 1942 is said to be one of the most extensive of its kind made by any airline on the subject of passenger discomfort.

Plan for Surplus Planes

(Continued from page 24)

past growth is intimately linked with the uninterrupted development of new and increasingly more efficient aircraft.

"Nor would it be wise to dump these aircraft on the foreign market indiscriminately. Being a nation of outstanding excellence in the field of transport aircraft manufacture, we will be overlooking an important consideration if we do not weigh carefully how our own interests dovetail with those of foreign countries, and make the necessary adjustments. Our own good reputation as the vendors of efficient aircraft might be protected better by some kind of a program which would make such aircraft available to meet temporary requirements pending the time when more efficient aircraft become available for purchase. This would keep the market fresh and vigorous.

"As as alternative to dumping, the surplus aircraft might be scrapped. Of coures, some aircraft would need to be preserved to take care of the immediate and pressing needs of the United States and foreign carriers, as I have already suggested. Scrapping would have the advantage of cleaning up the situation so that the available market would be preserved. It would have the obvious disadvantage of liquidating a very large and costly fleet of transport aircraft which might serve for awhile as a valuable war reserve or an instrument in the maintenance of peace for a number of post-war years. At this time no one can foresee the sort of a world which will emerge from the holocaust of this war.

"Of course, a certain number of surplus aircraft will have to be scrapped in any event. The war's close will find many of our air transports located at remote fields throughout the world. Overnight the standards by which aircraft are valued will undergo radical revision. No longer will many of these aircraft be in condition to meet the peacetime test of airworthiness. The cost of reconditioning and possible rebuilding plus the flight or shipment costs to a home base will have to be carefully measured against the plane's value at the home base on a market already surfeited with similar equipment. No doubt, a careful, on-location survey of all war transport aircraft, in the light of various considerations of cost and value, should be undertaken as a first step in any postwar surplus air transport arrangement or plan, in order to determine what equipment is not worth reconditioning or salvaging.

"However, in addition to the equipment which is written off and destroyed and the equipment immediately needed to relieve the acute shortage of transport aircraft in commercial service and to expand commercial air transport operations, there will undoubtedly exist an air transport surplus sufficient to take care of military peacetime needs and replace many fold the prewar fleets of all of the world's air carriers . . .

"The government might authorize the return to each of the manufacturing concerns which has produced transport aircraft the surplus supply of its own type to permit the factory to convert the aircraft to commercial usage and resell them under appropriate rules and regulations calculated to prevent the development of evils in the procedure not now foreseeable. Obviously, this would be a vast and complex undertaking and the disadvantages that would surely follow in its train could well be greater than the disadvantages it was designed to avoid.

"The government could enter upon a policy of preserving the surplus aircraft in a separate reservoir or pool for use in any future emergency or contingency which might arise. In this connection it might be well to note that although commercially, where economy of operation is a controlling consideration, it is important to have the most modern and efficient types of aircraft possible; this factor is not controlling where a period of national emergency is involved and operating cost is relatively unimportant. The establishment of such a reservoir would involve, of course, the building and maintenance of large storage facilities.

"But far more realistic to my mind than any of the possibilities which I have mentioned or than any of the possibilities which could be suggested today is the proposal that adequate machinery be set up now to handle the surplus aircraft problem in whatever way may best accord with the national interest and national policies at the time when these matters must be decided . . .

"Bearing upon all these problems is the fact that unless considerable work is done toward the development of purely commercial type aircraft prior to the close of hostilities, we can anticipate a period of from two to five years before new types are available for the market. In the meantime, the transport aircraft needs of our civil air lines, of reconstruction and relief operations abroad, and of foreign countries, will have to be met from war produced aircraft even if those aircraft are not as efficient as the postwar aircraft industry will know how to build.

"It may be thought that I have placed too little emphasis upon the construction of smaller types of aircraft and upon the problems which will confront the manufacturer of parts and accessories. The problems of these latter businesses are no less acute in their field than are those of the transport aircraft producer; but in a brief review it is necessary to concentrate on one branch of the field. All branches of the flying equipment industry should receive the same careful attention in the determination of national policy.

"We turn now to the exceedingly important question of how we can set up machinery which will place the government in a position to do what is necessary when the time comes. An aviation-conscious Congress, recognizing the problem, has before it to provide such machinery House Bill 2959, introduced by the Honorable Clarence F. Lea of California, Chairman of the House Interstate and Foreign Commerce Committee. At presently constituted, this bill proposes to place in the Civil Aeronautics Board the responsibility for handling the surplus aircraft problem and grants broad powers to the Board in the disposition of surplus aircraft owned by the United States . . .

"The objectives of the Bill are worthy, and I believe that the Civil Aeronautics Board, charged already with the duty and responsibility of fostering the sound development of an air-transportation system, should have a large part to play in the disposition of the surplus aircraft. It is believed, however, that other departments of the government have vital concern in this disposition, and I am authorized to say that it is the Board's view that the instrument for carrying out the provisions and intent of this Bill should be a corporation, the Board of Directors of which should include representatives of the War Department, the Navy Department, the State Department, the Treasury Department, the Commerce Department, and the Civil Aeronautics Board . . .

"If the end of this war finds the aircraft manufacturers limited to the capacity to grind out exact replicas of those aircraft of which there are already a large surplus on hand, and finds them unable to place upon the market, soon after the war, aircraft that are appreciably more efficient for commercial service than those already on hand, then I say that as a nation we will have missed a great opportunity. The war may, of course, force us to miss it; but let us hope not.

"The term 'postwar' planning has a pleasantly reassuring sound. It brings to mind a picture of broad-scale blueprints of the future and other comprehensive activities. But I venture to assert that any postwar planning, which does not provide for aggressive, practical application in the factories of this country just as soon as the war program permits, is a form of self-delusion.

"To find time and find a way to launch and develop those activities which at the war's end will place our aircraft factories in a degree of readiness to produce what they *should* then be capable of producing is a matter of distinct national concern. To find time to develop new and better models of transport aircraft ranging from small but efficient types suitable for local services to large transoceanic air liners is the problem. I have faith that, if this problem can be worked out in harmony with the requirements of war production, our American manufacturers and air line operators need have little concern for the competition from postwar surpluses of war transport aircraft."

Large Postwar Airports Planned by Twin Cities

An enlargement of the airport area of greater Minneapolis-St. Paul, which would include one port for use of international traffic and another for local, "to connect the Northwest with worldwide postwar aviation centers," has been envisioned by the Greater Twin Cities Chapter of National Aeronautic Association.

This dream port would be expanded from the "practically completed" Wold-Chamberlain Field, Minneapolis, and Holman Airport, St. Paul. Two landing strips would also be constructed, running parallel to existing railroad lines, for quick transfer of express and freight from railroad and truck unloading points to the aircraft docks.

From 20 to 40 smaller landing fields for light commercial and private planes would be located on the outer edge of the heavy aircraft area.

WINNING THE BATTLE OF COMMUNICATIONS!

Mobile communications units assembled by Hallicrafters are helping to win the battle of communications on every fighting front. They are built to endure the rigors of modern warfare . . . The consistent performance of SCR-299 has been highly praised by leading members of our armed forces for its adaptability in meeting all the requirements of combat duty . . . A phrase best describing the SCR-299 was given when a leading military authority said, "It is to communications what the jeep is to transportation."

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BUY MORE BONDS

THE WORLD'S LARGEST EXCLUSIVE MANUFACTURERS OF SHORT WAVE COMMUNICATIONS EQUIPMENT

KCS Opposes Justice Dept. Intervention in CAB Proceedings

There is no justification and no authority for the proposed intervention by the Dept. of Justice in the proceeding involving applications of Kansas City Southern Transport Co., railroad subsidiary, for airline routes, the company charged on July 17.

In an unusually strong petition urging that the Dept. of Justice petition be denied, the company asserted that "the Dept. of Justice is not authorized or directed by law to participate in or represent the government . . . in any manner in proceedings of the character here involved . . .

The Justice Dept. has asked permission to intervene in all cases involving applications of other forms of transportation to enter the airline field.

"No violation of the federal anti-trust laws are involved herein, nor contemplated in this proceeding, and consequently enforcement of the anti-trust laws is not involved," the company said.

Radio-Noise Filters

Available in ratings of 20, 50, 100 and 200 amps, d-c, at 50 volts, a new line of compact radio-noise filters has been announced by the General Electric Co., Schenectady, N. Y. For use on aircraft electrical systems—circuits with such equipment as generators, amplidynes, inverters and dynamotors—the new filters' high attenuation characteristics are said to result in excellent noise suppression, especially from 200 to 20,000 kc. As an example of size, the 100-amp rated unit weighs approximately 2 1/5 pounds and measures 5" by 4" by 2½". The filters can be mounted in any position and will operate over a range of ±50 degrees C.

PAA Reports 1942 Was Most Important Year In Its History

Expansion of the world-wide war services of Pan American Airways System made 1942 the "most important year financially" in the 15 year history of the corporation, Juan T. Trippe, president, has reported to stockholders. Total business during the year was in excess of $109,000,000, representing both civil and military operations, Trippe said.

Net income, after taxes and other income deductions, amounted to $3,780,015, equivalent to $1.95 per share on the 1,937,355 shares of common stock outstanding. This compares with $3,361,251, or $1.73 per share, reported in 1941.

Gross revenue for the year amounted to $49,926,946, compared with $40,035,153 in 1941. Business done under cost and cost-plus-fixed-fee contracts with the U. S. government, for construction, military transport, and related services amounted to an additional $59,582,567, the report stated.

The consolidated balance sheet showed current assets of $22,201,837.31 and current liabilities of $14,335,019.66 as compared with current assets of $13,915,046.47 and liabilities of $10,017,674.73 at the end of the previous year. A dividend of $1 per share was paid December 29, 1942 on the shares of stock outstanding. The number of stockholders increased from 6,989 at the end of 1941 to 8,817 at the close of 1942.

Pan American was providing commercial air transportation to all continents and was serving 62 countries and colonies when the United States entered the war, Trippe observed. The company had just organized a modern air route across Africa under arrangement with the War Department and the British government.

"The company's greatest single contribution in the war is its pioneering development of international air routes to many parts of the world—air routes which have been so essential to military needs," he said.

The PAA president promised to tell the full story of the company's long distance and overseas service for the military air transport commands, the Board of Economic Warfare, the Rubber Reserve Corp., and the Allied nations "after victory."

He stressed the fact, however, that in addition to military services performed, commercial business, such as passenger, air mail, and air express, has continued.

Total miles flown by PAA during 1942 were 43,939,744 as compared with 24,358,346 in 1941, an increase of more than 80%, he said. The 1942 figure brought the airline's 15 year total to 185,500,000 miles of international flying since the 90 mile flight from Key West to Havana in 1927 inaugurated PAA's overseas service.

Revenue from passenger, express and other transportation services showed an increase of $14,344,733.31 over comparative figures for 1941, the report showed.

Discussing postwar aviation, Trippe said that if air routes are to be used to the maximum for furthering international commerce, air transportation cannot be merely a luxury service for well-to-do passengers but must carry the average man for what he can afford to pay.

"Pan American, in pursuance of this policy, started a program two years ago for construction of 36½ ton transports with a maximum passenger capacity of 50. Fares per passenger in such planes would be low," he said.

He termed the war, which curtailed this program, "a bitter laboratory for air transport, but a laboratory nonetheless."

Knollys for United Nations Air Parley On 'Competition'

There is no ceiling to the future of air transportation, and the sooner governments of the United Nations sit down and discuss postwar prospects for international airlines in terms of healthy competition, the better.

This was the opinion of Viscount Knollys, recently appointed director of British Overseas Airways Corp., when interviewed by *American Aviation's* West Coast representative in Los Angeles.

The Viscount would not elaborate on the status of these lines in the postwar era, merely saying: "Such problems are for governments and we hope they will be settled soon in such a manner as to permit the most rapid and healthy expansion of air routes to all corners of the globe."

Knollys, former Governor of Bermuda, visited Coast aircraft plants for the first time, and, accompanied by Air Commodore D. L. Blackford, air attache of the British Embassy, and Vernon G. Crudge, regional director in the West Atlantic for BOAC, has returned to the East Coast via Canada.

Elevator, Rudder Jig: Measuring jig developed at United Air Lines' maintenance base at Cheyenne, Wyo., permits more accurate checking of one elevator against another and determines the setting against the center line of the stabilizers. Jig consists of two 1020 steel plates of .125 thickness attached to elevator torque bearing supports on the stabilizers, and braced in between with four pieces of 5/16" tubing.

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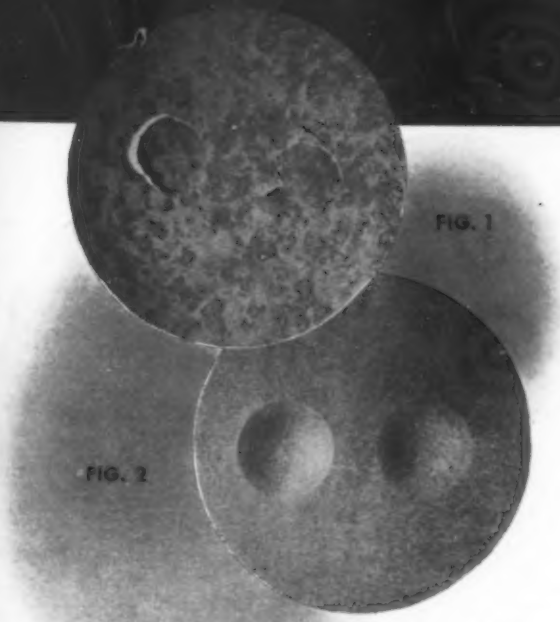

BURIED IN MILDEW INFESTED EARTH FOR 30 DAYS

Fabrics finished with conventional 7 to 12 coat dope systems lose approximately 60% of their original strength following attack by mildew organisms. (Fig. #1). Fabrics finished with the 4 coat EMYCEL system and subjected to identical conditions of exposure to mildew retain 95% of their original strength. (Fig. #2). Bursting strength recorded on Mullen Tester.

LIGHT PLANES, eyes of the Army, take cover with the troops among trees and underbrush, where fabric rotting due to mildew is unbelievably sudden and severe, especially in the tropics.

When Roxalin's fabric finish, EMYCEL, was first developed several years ago, it was specifically engineered to withstand mildew attack. Service records of Emycel finished planes prove its capacity to stand up in active use, under all climatic conditions.

Other reasons why EMYCEL is setting new standards for aircraft fabric finishing are such production advantages as the need for fewer coats and freedom from blushing in weather when doping with conventional materials is impossible.

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PLEXIGLAS *withstands the terrific air pressures encountered by the speedy Lockheed "Lightning."* *Photo through courtesy of Lockheed Aircraft Corp.*

TODAY on *every type* of Army and Navy airplane

ON the smallest observation plane, on the largest bomber, you'll find PLEXIGLAS cockpit enclosures, nose sections, tail assemblies, astrodomes or gun turrets.

This strong, shatterproof plastic is as clear as optical glass yet only half as heavy. It has proved itself again and again under the worst possible conditions. Even huge sheets of PLEXIGLAS are easy to cut and form into curved streamlined shapes meeting high optical standards.

Today, PLEXIGLAS is seeing action on every fighting front.

TOMORROW on your own private plane

THE same qualities which made PLEXIGLAS the standard equipment of fighting planes today will make it standard equipment on your own plane tomorrow. When buying your postwar plane insist on PLEXIGLAS—aviation's standard transparent plastic.

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Manufacturers of Chemicals including Plastics . . . Synthetic Insecticides . . . Fungicides . . . Enzymes . . . Chemicals for the Leather, Textile and other Industries

Hinshaw

(Continued from page 17)

"Some districts will not seem to be especially affected. But in those which are not adequately served by air, it is up to the industry to explain the possibilities of local pickup and feeder services, and why transcontinental lines can't stop at every milk station.

"In the manufacturing districts, congressmen must realize that a great deflation is coming in aircraft manufacture after the war. Give them all the information you can as to what your factory can do after the war. Start them studying the problems of conversion.

"Discuss with them the reasons why aviation requires special treatment and is not susceptible to regulation by each of the 48 states. For example, see that your congressman understands what is involved in airport zoning. Go back and explain to him what happened to aviation under the Interstate Commerce Commission.

"If you have weather bureau or other CAA facilities in the district, he should have a full explanation of what goes on. He may not know the benefits which have accrued to weather forecasting for agricultural and other purposes because of the requirements for accuracy and detail given impetus by the airlines. Explain the values received from the federal government's investments in airports and airways in cooperation with local interests.

"If you are handicapped by regulation, or lack of regulation, talk it over with your congressman. He wants to know about it and is entitled to know."

Hinshaw asserted that no one can comprehend what is involved in international air operations, or in diplomatic negotiations and diplomatic competition for foreign air transport rights, without having been abroad to see for himself. He strongly urged that legislators dealing with these problems be given an opportunity to take trips to the foreign areas for first hand study.

Pointing out that the Lea bill (Civil Aeronautics Act of 1943) probably will be up for consideration in September or October, Hinshaw concluded: "I would like to see every member on the floor ready with knowledge of what the bill is all about—and not confused by what might appear to be technical language. The aviation industry has a duty and responsibility to speak up for itself."

Rubber-Coated Copper Mesh

Now standard for many gasket installations in aircraft engines, according to the manufacturer, copper mesh coated with synthetic rubber was originated by the Detroit Gasket and Mfg. Co. and is being produced by The Goodyear Tire and Rubber Co. Eighty-mesh copper screening, a reinforcing medium, is said to be ample insurance against blowing out of these .015" thick gaskets. The synthetic rubber coating provides the necessary binding medium for the mesh and also provides the resiliency for assembly alignment. The manufacturer claims that gaskets so made have all of the desirable properties for service: high tensile, flexibility, oil resistance, etc.

Actions of the Civil Aeronautics Board

Order No. 2267, May 11, 1943: Permitted Douglas Campbell, vice president, Pan American-Grace Airways, Inc., to ride with any assistant airline transport pilot employed by Pan American-Grace between May 11 and 31, 1943, notwithstanding Civil Air Regulation No. 236.

Order No. 2280, May 26, 1943: Wavied section 21.10 of the Civil Air Regulations, requiring applicant for airline transport pilot certificate to be at least 23 years of age, so that R. E. Bittner, holder of commercial pilot certificate No. 43821, may apply. But certificate, if issued, will be restricted to prohibit Bittner from carrying any passengers for compensation. Request made by Pennsylvania-Central Airlines.

Order No. 2309, June 16, 1943: Authorized Compania Mexicana de Aviacion, S. A. to inaugurate service at Los Angeles, Cal., through use of the Lockheed Air Terminal, effective June 15, 1943.

Order No. 2311, June 17, 1943: Amended Order No. 2296, and authorized Western Air Lines to suspend service on route No. 52 for the period beginning June 5, 1943, through June 12, 1943.

Order No. 2312, June 17, 1943: In the case of applications of certificate of public convenience and necessity by Northeast Airlines, Transcontinental and Western Air, Colonial Airlines, American Airlines, TWA-New England, Seaboard Airways, Eastern Air Lines and United Air Lines, granted Boston Port Authority permission to intervene.

Order No. 2313, June 17, 1943: Consolidated applications of the airlines mentioned in 2312, above, into one proceeding, at hearing to be determined at future date.

Order No. 2314, June 17, 1943: Dismissed, without prejudice, application of Northeast Airlines, filed originally Apr. 25, 1940, for certificate to transport persons, property and mail between Portland, Me., and New York, N. Y.

Order No. 2317, June 21, 1943: Directed that testimony introduced in the application of Pan American Airways for amendment of its certificate be withheld from publication in the interests of national defense.

Order No. 2318, June 21, 1943: Similarly, directed that testimony introduced in the cases of Delta Air Corp. and American Airlines concerning their rates, fares and charges, be withheld from publication until further order of the Board.

Order No. 2319, June 21, 1943: Likewise, directed that certain testimony concerning rates, fares and charges of Western Air Lines and American Airlines be withheld from public disclosure in the interests of national defense.

Order No. 2320, June 21, 1943: Authorized Bert Ruoff, doing business as Bristol Bay Air Service, to suspend services on regular route in Alaska between the terminal point Anchorage, the intermediate points Tenalion Point, Iliamna, Igiugig, Koggiung, Naknek, Diilingham, Clark's Point, Egegik and Ugaashik, and the terminal point Pilot Point, because of carrier's inability to obtain aircraft and necessary equipment for adequate operation.

Order No. 2321, June 21, 1943: Denied petition of Eastern Air Lines for reconsideration of Order No. 2252, dated Apr. 7, 1943, insofar as that order denied application of EAL for certificate, as affecting the Caribbean area.

Order No. 2322, June 21, 1943: In the same manner, denied motion of National Airlines for reconsideration of Board's denial of certificate in the same area designated in Order No. 2321, above.

Order No. 2328, June 28, 1943: Authorized Star Air Lines to suspend service temporarily in Alaska at the points Igiugig, Koggiung, Egegik, Ugashik, Pilot Point, Clark's Point, Kanakanak, Ekwok, Chena Hot Springs, Van Curler's Bar, Miller House, Deadwood, Circle Hot Springs, Central, Circle, Fort Yukon, Nenana, Grubstake, Stampede, McKinley Park, Caribou and Kantishna, but without approving acquisition by this line of Lavery Airways or Pollack Flying Service.

Order No. 2330, June 29, 1943: Reopened order of the Board which denied applications of Continental Air Lines and Braniff Airways for authority to engage in air transportation between El Paso and San Antonio, Tex., and extended them opportunity to request authority to engage in temporary as well as permanent transportation within the area specified in their applications. Also, reopened for reconsideration applications of Braniff, Transcontinental and Western Air and Essair, Inc. for permission to operate between Austin and Houston, Tex. And, denied petitions filed by Continental Air Lines, Braniff and Essair and the cities of Lubbock and Amarillo, Tex., but without prejudice to the opportunity of Continental, Braniff and TWA to file applications for local service in the area previously specified by Essair, or to seek consolidation of applications with that of Essair. Finally, denied motions of Braniff Airways for consolidated hearing of dockets involving service between Amarillo and San Antonio, Tex., and between Amarillo and Houston, Tex.

Order No. 2331, June 29, 1943: Fixed mail rates on All American Aviation's route No. 49 as: From Apr. 10, 1942 to Mar. 31, 1943, inclusive, 54c per airplane mile, computed on direct point-to-point mileage on each trip flown; on and after Apr. 1, 1943, 50.26c per airplane mile, to be applied to the mileage determined by multiplying the total miles flown on schedules by a fraction, the numerator of which will be 3.532 and the denominator of which will be the average daily scheduled mileage designated by the Postmaster during the month, and a rate of 27c per airplane mile to be applied to the miles flown with mail during the month in excess of the mileage so determined.

Order No. 2335, July 2, 1943: Amended Order No. 2091, concerning Colonial Airlines' mail rate, by substituting for the figure "1577" miles wherever it appears the figure of "1700" miles.

Order No. 2336, July 1, 1943: In the cases of National Airlines, Delta Air Corp., Braniff Airways, Eastern Air Lines and Chicago and Southern Air Lines, on whose applications the Board ruled in Order No. 2273, dated May 10, 1943, denied petition of National Airlines for rehearing and reconsideration.

Order No. 2337, July 1, 1943: In the same matter as described in Order No. 2336, above, denied motion of Mid-Continent Airlines for rehearing and consideration.

New Radio Relay

A general purpose radio relay, Series 345 designed by Guardian Electric, Dept. 345, 1608 W. Walnut St., Chicago, for use in aircraft, is available in contact combinations from single pole, single throw up to three pole, double throw. This feature combined with the large coil winding area is said to make the unit an efficient relay in compact space. Dimensions are 2 3/8" by 2 1/32" by 1 11/16"; contacts rated 12 amps at 24 volts d-c are arranged to resist over 10g acceleration and vibration in all positions. Coil resistances range from .01 to 15,000 ohms; standard voltages are 16 and 32 with others available.

Air Express, Mail Best Postwar Bets, Says Charles Beard

Immediate opportunity will exist after the war for development of air express and a vast volume of air mail, during a transition period which will see a slower expansion of air freight, Charles E. Beard, vice-president of Braniff Airways, Inc., declared last fortnight in an address before the Southwestern Institute for Chamber of Commerce Executives at Dallas, Tex.

Basing his conclusions on an exhaustive analysis of air transport operating costs and experience, he predicted that the best cost figure which can be expected is between 15c and 20c per ton-mile. While asserting that the operating cost of available and projected equipment is too great to permit it a major share of the freight business, he said, "I am confident that the airplane, the engine and the fuel to do the job will be developed." However, it is going to take a longer time than has generally been predicted, he said.

Discussing other possible developments in aviation's transition period after the war, he said in part:

"Looking into another field of cargo operations, the express field, there is a very substantial market available and waiting for us in a very brief time after the coming of peace. In 1941, the Railway Express Agency handled a volume of 172,615,839 shipments. Of this total, only 1,306,629, or .76 of 1%, were handled in air express. The vast bulk of express shipments is of such a nature that they lend themselves to carriage by air and the present rail express rates are in the general vicinity of 15c a ton-mile. Here, then, is a very substantial field and one in which we can operate practically and economically in the very near future . . .

"The Railway Express Agency is the second largest pickup and delivery system in the U. S. The largest is, of course the U. S. Post Office Dept. It is my opinion that the time has come for the full utilization of those pickup and delivery facilities by the creation of a system of air parcel post. Such a system can be quickly created, and it will reach the farthest corners of the most remote rural areas. It represents the quickest and most feasible way of extending the benefits of air transportation to every farm and rural community.

"I indicated that some time would have to elapse before there would be a full and complete development of airplane usage as envisioned by many of our public speakers and our writers. I think that this is probably, in the final analysis, a very good thing. It will give us an opportunity to prepare and plan wisely for that development. During this period of preparation, our manufacturers will have the opportunity to apply many of the technical, scientific and chemical improvements of the past two years to the products of peace. In so doing, there will be created a tremendous number of new products, and these new products will be far more capable of being carried economically by air. In that time, we can also expand our communications facilities by the adoption of an airmail postcard. Limited research indicates that this would result in a 30 to 40% increase in the use of airmail.

"We can also make good use of the time which will be available to us in developing and improving the mail handling facilities, which will enable the Post Office Dept. to expand its use of air facilities by the gradual conversion of first-class mail to carriage by air . . .

"We are not presently legally conditioned to take care of the vast expansion which has been predicted and the existing voids and defects in legislation should be filled and cured during the interval immediately ahead of us. First, we must have one overall Federal law, providing uniform regulations of both an operation and an economic nature and providing for uniform liability which is fair and reasonable to both the public and the aircraft owners and operator.

"If a hodge-podge of state and local legislation similar to that which afflicts the motor bus and truck operators is permitted to come into existence throughout the nations, we never will have the brilliant aviation future which has been predicted. State laws must then be coordinated with this overall Federal legislation so as to aid and assist it in functioning. There is a vast field of state legislation which will be required. This legislation will deal with such things as zoning around airport areas, authorizing cities and counties to own and operate jointly airports and landing areas (presently this is not authorized in many of the states); these and other necessary laws should be devised by a small group of able and experienced lawmakers and intelligently promulgated to all the states to assure uniformity. There probably will be necessary enabling legislation which will permit the states to assist the Federal government in policing airplane operations of all types . . . There is still another step which can be developed also in the transition period. There can and should be developed what is commonly referred to as 'feeder lines.'"

Loosener: A new tool 'that succeeds where tractors fail' loosens an airplane tire from its rim in the Development Dept. of the Firestone Tire & Rubber Co., Akron O. Designer of the tool is W. H. McCollister, who is shown instructing a Firestone woman employee how to use it.

Boren Warns Against Glowing Claims for Future Air Business

Air transportation remains a "speck in the sky" when compared to other forms of transportation, Rep. Lyle Boren (D. Okla.), high ranking member of the House Interstate and Foreign Commerce Committee, stated recently. "Despite all of the increase in the transportation of express on our domestic airlines, air express amounts still to less than 1% of rail express alone—without consideration for the tremendous volume of cargo transported by rail freight, by motor truck, by waterway and by pipe line," he said.

Boren warned against "over optimism" on the part that air transportation will play in the postwar period and urged a policy of special government treatment of aviation—as provided in the Lea bill now pending before his committee, a policy which would emphasize "development" of the "infant industry" rather than lump it in with older forms of transportation and "regulate" it.

He said: "Extravagant optimism can, like many other good things, be carried too far . . . We must guard against assuming too readily that aviation and especially the air-transportation phase of aviation, has suddenly reached an established position in our transportation economy enabling us to draw settled conclusions concerning its inherent advantages, its proper relationship to other modes of transportation and the ultimate stature to which it should be permitted to grow. Fortunately there have recently been sounded sober warnings against some of the excessively enthusiastic predictions concerning air transportation and its capacities. Practical and hard-headed men of experience in air transportation have warned us not to forget that the industry remains an infant despite all the miracles being performed on wings on the far-flung airways of the world."

Although highly commending the job the airlines are doing and their contributions to the Army air transportation, Boren cautioned that "the total volume of cargo which can be carried in our present transport equipment, even when augmented by the tremendous production of 1943, will remain insignificant." Referring to the recent OWI report which revealed that more than one-fourth of all twin-engine and 4-engine aircraft manufactured in 1943 will be transports, Boren observed: "Yet, if all the cargo planes which will be delivered to the armed services during 1943 could be assembled in a single area, and were all to take off with fuel for a 2,000-mile flight they could carry a total of only about 20,000 tons of cargo."

"The reason we place such emphasis today upon air transportation in connection with the war and operate fleets of aircraft . . . with . . . relatively small carrying capacity . . . at . . . tremendous cost is that in war the job must be done regardless of cost. Speed and mobility are all important in wartime and when the U-boats make the seas unsafe for shipping . . ."

The cost of air transportation and the availability of other means of transportation will become extremely important, however, with the arrival of peace, Boren pointed out.

This Northrop-designed-and-built "Gamma" flew the peaceful skies of 1936 as TWA's famous "overweather laboratory". Its discoveries in the stratosphere add to the safety and battle score of every boy now flying the six-mile-high bombing roads to Axis cities—and back

In this Northrop "Gamma" the U. S. learned about 6-mile-high flying

Seven years ago Transcontinental & Western Air, Inc. wanted to know if a transport plane could escape storms by flying "over the weather". There was almost no data at hand, for only a few exploratory high-altitude airplane flights had been made earlier. TWA's research pilot, D. W. Tomlinson, undertook the job.

Tomlinson's first experimental flights were made at ceilings around 20,000 feet. Then, late in 1936, the U.S. Army loaned TWA a special supercharger which was installed in the swiftest single-motored mail plane then known — the Northrop "Gamma". (It had flown the mail from Burbank, California to Newark, New Jersey in less than 12 hours.)

In this sturdy Gamma, designed and built by the Northrop group, came the flights that taught America what stratosphere planes of today would have to do. Repeatedly, Tomlinson and his fellow scientists explored the upper air between Kansas City and Newark. Some of their transport flights were ceilinged at over 37,000 feet!

More. This "overweather laboratory" took the air *in storms that had grounded all regular transports.* It would rise above the storm's center, determine how to get past safely, with least expenditure of fuel and time.

Mind you, this was a *commercial* project . . . not set up to pioneer a bombing road to Berlin or Tokio. Yet it laid a vital part of the foundation on which U.S. pilots now travel the 6-mile-high bombing roads to enemy objectives.

That's the record of a famed Northrop-designed airplane of the past. In the all-consuming present, the group which designed and built the Gamma is at work night and day. Grown now to many thousands of men and women, this Northrop group is turning out more and more warplanes — of striking power more deadly than most men can imagine.
AND THIS IS ONLY THE BEGINNING.

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CAA Examinations Now Available To Pre-Flight Aviation Students

By ALBERT J. ROSENBERG
(Written for American Aviation)

THE Civil Aeronautics Administration has recently announced that it will allow qualified students in the high school pre-flight aeronautics course to take the private pilot's ground school examination.

The student who satisfactorily passes this examination will receive a Certificate of Aeronautical Knowledge from the CAA. As the CAA is the sole certificating agency for all civilian pilots this examination will serve two purposes:

A. Test the students knowledge of pre-flight aeronautical subjects according to CAA standards.
B. Credit the student with meeting the ground school aeronautical knowledge requirements for the private pilot's certificate.

This examination is not intended to be a substitute for the regular examinations which the high schools ordinarily give as a basis for course credits. Such examinations are under the jurisdiction of the school that is offering the pre-flight aeronautics course and is given to meet the objectives of the course as determined by each individual school. However, the private pilot's written examination is given under the jurisdiction of the CAA and is primarily intended to test the proficiency of the students in ground school aeronautical knowledge requirements for the private pilot's certificate according to Civil Air Regulations, (Part 20, "Pilots Certificates").

The CAA private pilot ground school examination determines the minimum aeronautical knowledge required by private pilots in four subjects: meteorology, navigation, Civil Air Regulations, and General Servicing and Operation of Aircraft. As evidence of mastery of the above subjects, the student who satisfactorily passes the examination in one or more of these subjects, will be given the CAA Certificate of Aeronautical Knowledge, on which will be indicated the subjects which he has successfully passed. If any one or more subjects is not satisfactorily completed the student may take a reexamination in each of the incompleted parts 30 or more days after the original examination.

The students who obtain the CAA Certificate of Aeronautical Knowledge indicating satisfactory accomplishment in each of the four sections of the examination may obtain a private pilot's certificate at any time within 12 months from the date of the original examination, providing that they pass a flight test and meet physical and other requirements as prescribed by the Civil Air Regulations, (Part 20 "Pilots Certificates").

To be eligible for this examination high school students must meet the following requirements:

A. Must be not less than 16 years old at time of the examination.
B. Must have completed or be enrolled in a pre-flight aeronautics course at the time of the examination.
C. Student's name must be submitted to the CAA by the principal of the school in advance of the examination.

Present plans call for these examinations to be given three times each year in January, May-June and September. The first examinations were given in May-June 1943. The next scheduled examination will be in September 1943. Although there is no minimum number of class hours required before taking the examinations, teachers are urged to discourage students from taking the examination unless they have completed or are approaching completion of the pre-flight aeronautics course before the time of the examination.

Applications for the examinations must be submitted to the CAA and the following requirements must be observed.

A. The application must be prepared and submitted in duplicate by the principal of the school in which the students are enrolled.
B. The application must contain the names, addresses, sex, and birth dates of all students who are going to take the examination, the name of the school and its location, the examination room, and the date and hour of the examination. The date may be anytime within the months of May-June, September or January.
C. The application must contain a statement that the students whose names are listed therein have voluntarily decided to take the examination.
D. The application must be in the hands of the General Inspection Division, Civil Aeronautics Administration, Washington, D. C. not later than 30 days preceding the beginning of the month in which the examination is to be given.

The CAA will send a designated representative to the school to give the examination. The school will be notified prior to the date of the examination of the name and address of the designated representative. Four hours are permitted for the examination, although less time is usually required.

The examination is based upon the requirements prescribed by Section 20.125 of the Civil Air Regulations. It is composed of four sections: Navigation, Meteorology, Civil Air Regulations and General Service and Operation of Aircraft. The examination has 120 multiple-choice questions, 30 questions to each section.

Students may prepare for this examination by thoroughly studying any of the many excellent pre-flight aeronautics textbooks that are being used in the high school programs. Special emphasis should be placed on navigation, meteorology, Civil Air Regulations and general servicing and operation of aircraft.

Listed below are a number of selected special references that can be used in preparation for the private pilots examination.

A. Navigation
1. "Elements of Aeronautics" by Pope & Otis—pages 287-334.
2. "Science of Pre-Flight Aeronautics for High Schools" by Aviation Education Research Group—pages 662-710; 714-725; 727-764.
3. "Elements of Pre-Flight Aeronautics for High Schools" by Aviation Education Research Group—pages 56-58; 329-360; 370-385.
4. "American Student Flyer" by Hamburg and Tweney—pages 451-500; 525-534.
5. "Air Pilot Training" by Shields—pages 437-463; 467-494.
6. "Practical Air Navigation" CAA Bulletin No. 24.

B. Meteorology
1. "Elements of Aeronautics" by Pope & Otis—pages 402-407; 423-527; 546-565.
2. "Science of Pre-Flight Aeronautics for High Schools" by Aviation Education Research Group—pages 436-585; 588-623.
3. "Elements of Pre-Flight Aeronautics for High Schools" by Aviation Education Research Group—pages 53, 60, 68 and 128.
4. "American Student Flyer" by Hamburg and Tweney—pages 345-450.
5. "Air Pilot Training" by Shields—pages 357-434.
6. "Meteorology for Pilots" CAA Bulletin No. 25.

C. Civil Air Regulations
1. "Elements of Aeronautics" by Pope & Otis—pages 566-570; 589-604.
2. "Science of Pre-Flight Aeronautics for High Schools" by Aviation Education Research Group—pages 149-177.
3. "Elements of Pre-Flight Aeronautics for High Schools" by Aviation Education Research Group—pages 46-49.
4. "American Student Flyer" by Hamburg & Tweney—pages 591-601; 610-627.
5. "Digest of Civil Air Regulations for Pilots" (CAA Bulletin No. 22 5th Edition)—pages 1-68—especially the questions at end of the booklet.
6. "Civil Air Regulations"—part 20 and part 60.

D. General Servicing and Operation of Aircraft
1. "Elements of Aeronautics" by Pope & Otis—pages 1-18; 29-66; 97-235.
2. "Science of Pre-Flight Aeronautics for High Schools" by Aviation Education Research Group—pages 40-68; 136-145; 192-213; 222-231; 235-279; 288-303; 304-309; 311-426.
3. "Elements of Pre-Flight Aeronautics for High Schools" by Aviation Education Research Group—pages 54-57; 154-172; 176-179; 183; 185; 188-275; 361-364.
4. "American Student Flyer" by Hamburg & Tweney—pages 19-53; 117-146; 156-162; 171-172; 177; 182; 185-194; 204-225; 233-317; 326-332.
5. "Air Pilot Training" by Shields—pages 16-42; 51-88; 96-97; 107-113; 114-117; 135-137; 143-170; 171-172; 177-183; 184-185; 189; 206-226; 240-254; 266-283; 284-287; 288-294; 301-305; 324-345.
6. "Pilot's Airplane Manual"—CAA Bulletin No. 27.

Although the above references should be helpful to those students taking the CAA private pilot's examination, they do not include all the subjects taught in the high school pre-flight aeronautics course. It is, therefore, important that the student, although studying the above for this examination, spend part of his time in thoroughly understanding other phases of the pre-flight aeronautics course.

The CAA will require a grade of 70% or better in each section of the examination. Each student will receive a report of his examination grades and copies of these reports will be sent to the schools. Where students receive a grade of 70% or better in one or more of the four subjects of the examination, the report will consist of a Certificate of Aeronautical Knowledge designating thereon the subjects in which he has passed.

The student who has failed one or more sections of the examination may, with the approval of the local high school, retake those sections of the examination at the next examination date arranged by the school.

Students who are to be reexamined shall be certified by the principal in the same manner as all other candidates, except that they shall be designated as re-examinees.

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International Airway Operations Analyzed

By E. J. FOLEY

EXTENSION of airline operation into the international field, we have said before, introduces many new problems while demanding resolution for many of the old ones.

Following up a recent article in these columns which presented our personal slant on the international operating problems of supply, maintenance and personnel at line stations, let's take a look at two other phases of the operation and their problems—traffic and operations.

Foley

In discussing traffic, we shall confine our comment to passenger traffic in the interests of brevity. Without being at all disloyal to the transportation industries, we can say that *to many*, travel is boring in the extreme; in this category, we find many to whom travel is the major portion of their business. Accordingly, *to many*, air travel may be less boring only by virtue of its speed. Yet it is unjustified optimism to talk of cruising speeds more than 30 to 40 per cent in excess of present standards if we are to retain our essential interest in the economic soundness of our business.

Long range operation will evidently continue to make the passenger our guest for longer periods until such time as cruising speed increases offset its greater non-stop distances. Therefore, it follows that the international operator will be faced with greater hazards of boredom. A partial solution has been said to lie in the arrangement of the aircraft interior and appropriate facilities. We know of no study of passenger reaction to "compartment" arrangement as opposed to the conventional all-facing-forward setup; possibly, the necessity for someone riding backward in such a design nullifies any advantages that may be claimed. It would seem that Lockheed's Jack Sheehan must have had this question in one of his analytical quizzes but we can't recall it. Another solution, obviously limited in scope but actually practiced where schedule *infrequency* permits, is the routing of all long-range flights overnight. If the passengers can be kept in bed—or at least asleep—the problem may largely solve itself.

In discussing the aircraft interior as a traffic problem, we feel justified. In effect, this is the packaging of our service or, mayhap more appropriately, the tray on which we serve our guests. The fact that the traffic department may not directly control the design or maintenance of this element does not make it any less important to their success.

Disgressing for a moment though, may we add that airline service is not a "gift"; so in our packaging, why not ignore the lace and ribbons? Air transport interior essentials are neatness and businesslike attractiveness.

A second element, also tied to time, heightens the traffic "service load." It is that imposing increment of passenger time consumed in complying with passport, customs and similar regulatory procedures at each end of the international line. Even with present-day air speeds, these functions may add some 20% to actual air time. These inroads into the total elapsed time for the passenger may vary from port to port but can only increase in percentage as the cruising speeds increase unless we can find some way to streamline them. Only time can tell what the efficacy and practicability of a world government and airline conference would be in solving these problems.

Local Authorities Rule

Not infrequently, the enforcement of and adherence to these regulations is left to the discretion of the local authorities. We feel that cordiality and sincere cooperation between the operator and the national and local authorities may do much toward the simplification of these rulings in practice. Yet as we said in an earlier treatise, we believe that any standards of easy passage through foreign lands that may be in evidence today are not wholly attributable to a new recognition of air transport but are more likely gestures in the interest of the war's prosecution. We may expect the re-erection of barriers upon the return of peace; final freedom being dependent upon world agreement.

Like aircraft accommodations; food, aloft and aground enroute; personal service for the passenger and so on, are, to our way of thinking, traffic problems. Not that the traffic department must solve them, but rather that our failure at solving them strikes home to the passenger, the one who has bought our service.

The food problem assumes its proper porportions when we think in terms of 36-hour aircraft occupancy by passengers and the possibility of six or more successive meals on a long flight. (As a matter of general policy the airlines are going to have to determine the justification for continuing the free meal policy, and whether such decision shall hold for international operation.) Regardless of the problem, there appear to be two possible solutions: the partial advance preparation of cooked foods plus the cooking completion through thermos jug retention, or the carrying of fresh raw foods and the complete cooking on board. Much should be learned about this problem from today's experience by the services; whichever school of thought triumphs, the effect of the technique upon detail aircraft design is apparent.

Of the two possibilities, we prefer the complete cooking on board. From a weight standpoint we do not contend that this preference would result in any great saving. The point is highly debatable; but from a passenger appeal point of view, we feel it has certain merit. If such a technique were to be adopted, full electrification of the entire galley unit could be supplied from a high power-weight ratio auxiliary powerplant. We recently had an opportunity to study a complete and functional aircraft galley layout prepared by Edison-G. E. Hotpoint. The installation was a complete galley layout from storage space to icebox.

We don't want to imply that full cooking aboard the aircraft is appropriate or desirable for any and all aircraft regardless of size. It is strictly a large aircraft feature. Further than this, it would appear that the aircraft size would have to be sufficient to justify economically the carrying of a passenger-service staff of two as part of the crew.

Final angle on the food problem is supply points abroad. May we expect that the reconstruction after World War II will enable us to depend upon the appeal and quality of the convenient local food markets in any part of the world we may serve, or shall we find it necessary indefinitely to maintain stockpiles of American food?

What will be the airlines' responsibility toward the passenger when delays arise at a foreign station? In *cities* wherever they may be, the passenger will have a good chance to "survive" regardless of the operator's policy. On the other hand, we assume that those airlines which contemplate transpolar world routes are planning to provide "staff houses" or equivalent passenger accommodations all along the routes. This service must be of as high a calibre as any part of the operation if the operator is to maintain his position consistently. Such rarely used facilities will be a literal burden to the operator unless he can develop some more continuous application of the space than he realizes from emergencies.

Reverting to the aircraft which we have taken as the source for most of the

(Turn to page 64)

'Self-Extinguishing': Sponge made from Koroseal, the plasticized polyvinyl chloride, as pictured here, is now available for essential industry applications, it is announced by the B. F. Goodrich Co., Akron, O. The principal advantage claimed for the material is its characteristic non-flammability. It is said to be "self-extinguishing" when the flame source is removed. The product also has the same resistance to oils, greases, chemicals and oxidation as the other Koroseal products. It can be made in various densities and pore sizes. Dr. F. Schoenfeld, (left) technical superintendent of Goodrich's chemical division and Dr. H. E. Fritz, director of research are the observers pictured.

Line of Control Motors Designed for Aircraft

Available with 50-500 in. lbs. torque values, this line of Barber-Colman control motors has been designed for aircraft service: dampers, intercoolers, cowl flaps, valve drives, etc.

The line has been designed for high altitude, low temperature operation. All

housings are of aluminum; the gears are machine-cut hardened and packed with low-temperature lubricant. Totally enclosed, tamper-proof limit switches are set for 90 or 180 degrees rotation.

The motors are available for positive, floating or proportioning control as a unit of the Barber-Colman Micro system or for step control by manual or automatic means.

Saw-Gun

Mid-States Equipment Co., Department AA., 2429 So. Michigan Ave., Chicago, announces the Saw-Gun. It is described as an attachment for an electric drill to provide power saw or file. It is recommended for use with drill speeds of 2000 rpm. or more. The manufacturer states that the tool will cut directly into wood or plastic without starting-hole and that sawing or filing in hitherto inaccessible places is possible with the tool. Price of the Gun alone is $40; it can be supplied complete with heavy duty drill and chuck for $85.

Equipment Literature

"Spring Design and Engineering" is the title of a 4 x 9 inch manual published and distributed by Mid-West Spring Mfg. Co., 4262 S. Western Ave., Chicago. The manual gives spring design and engineering formulae for compression, extension, torsion, flat spiral, wire forms, etc. Illustrations, diagrams and tables are used throughout to present the data.

In recognition of the growing applications, B. F. Goodrich, Akron, O., advises that it has published a 12-page manual on the Rivnut. The complete description of the Rivnut in standard, countersunk and flat head types and the grip range are given; a page is devoted to Rivnut weights and tables give typical ultimate strength, strength in double shear with no reinforcements, torque resistance of Rivnut keys, thread strength, etc. Also included in the text are instructions for applying the Rivnut and a description of both power-driven and hand tools for applying.

Summerill Tubing Co., Bridgport, Pa., has just issued a 12-page booklet on tubing identified as Bulletin 443. It is a war edition with useful information on the specialties Summerill is producing such as tapered and formed tubes and a variety of special shapes. It also has a guide chart giving detailed information on the chemical composition of 25 different metals in regular production together with the size range available in each and the physical and mechanical properties necessary for design consideration and material use.

Bulletin 2431M has just been issued by Streeter-Amet Co., 4101 Ravenswood Ave., Chicago, to fully describe their Tensile Tester for use in tensile strength determination on wood veneers. Among the points highlighted in the bulletin are: the speed of testing possible; the fact that no special preparation of samples is needed; and, the influences of natural wood characteristics on test results.

Hobart Brothers Co., Troy, O., are beginning a series of compilations of information on new materials and new methods that have been developed from war production experience. It is offering this service covering special information to help engineers, designers, metal workers and purchasing departments. The service will cover: The New NE Alloy Steels—New Building Specifications—Elements in Alloy Steels—Welding Nichrome Steels. The first in this series of service bulletins is Alloy Metals Finding List and List of Sources. This booklet takes all alloys by their trade name, gives the service characteristics of each, the principal constituent and the source for purchase.

To guide the training of students of the Apprentice School, B. F. Goodrich Co., Akron, O. has just published a 26-page manual outlining all the details of the various courses of study conducted by the school. Explanation of the school's purpose, method of selecting the students, administration of the program, cooperative plan with the local board of education, ratio of apprentices to journeymen and the length of time required in each of the courses are among the topics discussed. The course of study for each trade both for the classroom and the shop with the hours required in each is also given. Executives of companies or organizations, which have similar programs or are contemplating them, are invited to write for free copies of the manual.

Communications Device Aids Plane Assemblers

Developed originally for pilot-instructor communication, a Ranger Model 404 Interphone has been found useful for two-way communication between workers in maintenance or assembly. It is the product of Electronic Specialty Co., 3456 Glendale Blvd., Los Angeles.

Only one amplifier case is required for two-way operation; the unit may be carried on a waist-belt with a shoulder strap and one cord suffices for one-way connection; two cords for two-way.

Throat type microphones to free hands, and headsets complete the gear. An output of 180 millawatts is available. Complete with tubes, batteries and belt, the unit weighs 2 lbs. 10 oz. and the overall size is 4½" by 2¼" by 5⅛".

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Whiting's present wartime research on bomb hoists is providing Whiting's engineers with valuable experience for dealing with the cargo handling problems of both war and peace.

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WHITING CORPORATION

Aviation Division

Lockheed Builds Technical 'Empire'

Most Planes Entering European Theatre Pass Through Four British Bases

By PEGGY GUETTER

NINETY-FIVE per cent of the American aircraft entering the European theatre of operations pass through four service bases operated by Lockheed and Vega Aircraft Corporations in the United Kingdom, it was revealed last fortnight by Reagan C. Stunkel, Lockheed's general service manager. Stunkel has just returned from a 25,000-mile inspection tour of North Atlantic, South Atlantic, United Kingdom, and North African bases.

Three of the British bases—one in northern Ireland and two in Scotland—are operated by Lockheed Overseas Corp. for the United States Army Air Forces. The fourth—in western England—is operated for the Royal Air Force. More than 6,000 civilian workers service 33 types of American aircraft, engines, and accessories at the four bases, Stunkel disclosed.

"The nucleus of this work began in 1939," Stunkel said, "when Lockheed sent the first American service representatives to Britain to reassemble its Hudson bombers for the English. With the growth of our Allied air fleet and increasing tempo of attack over Europe came the biggest problem of all—maintenance of fighting craft."

The bases are set up to carry out the following specific operations: modification of planes for combat theatres, including the installation of latest equipment; maintenance, overhaul and repair to keep battle planes in fighting trim; repair of battle and operational damage; reassembly work whenever necessary.

Scope of the work at the bases is revealed in Stunkel's approximation of operational damage and the ratio to be maintained within an air fleet.

"About half of the planes which go out are in need of repair from enemy fire," he said. "Five per cent will not return; 10 per cent will be damaged returning to home base and 25 per cent will receive minor battle scars.

"The air fleet is worked on a basis of 50 per cent flying; 25 per cent in reserve and 25 per cent in the repair shop. Seriously damaged planes are hauled to the bases where maximum time in overhaul is 28 days."

Specific examples of base projects which have captured headlines include modification of the famous Fortress "Susie Q"; rigging special trailers to eliminate disassembly of Spitfires being rushed to an aircraft carrier destined for Malta; modification of the Douglas C-47 fleet which carried paratroops to North Afrca as well as the P-38's which made the first mass flight to Africa.

Supplementing the work at the bases are six mobile repair units, machine shops on wheels, each carrying a crew of 24 skilled mechanics. These units shuttle between remote flying fields in England, tackling any job which can be completed within ten days. Their work also serves to supplement the Army Technical Forces which carry out the majority of front-line repairs.

Stunkel sums up the urgency of these operations: "A damaged plane which has been modified at the battle front is far more valuable to the Air Forces than a shiny new plane on the ramp of an aircraft factory in this country."

Pointing out that 30 per cent of Lockheed Aircraft's total production is in spare parts, Stunkel observed that we are "over the hump in the bottleneck of spare parts to the fighting fronts." This, he said, was a serious problem when U-boats were scoring heavily in the Atlantic.

"During the darkest days, we made our own spare parts from materials supplied by the British," he said.

Standardization will further speed up front-line maintenance, Stunkel believes. He said it is now possible to interchange instruments, armament, engines, propellers and radio equipment.

"The Germans had 10 years to build a standardized air fleet, while we've had 18 months," he said.

In addition to the bases and mobile units in the United Kingdom, Lockheed's "technical empire" is backed by two big service bases in southern California and Texas, largely engaged in modification and major overhaul. More than 150 trained technical representatives work with Army or Navy units in the field, 90 of them in 19 states of the Union and others with fighting units in 18 nations or islands around the globe. A training school in Tennessee prepares new technical workers for the field while two training schools in Burbank instruct Army and Navy technicians.

Lockheed's service headquarters in Burbank is the laboratory of the "empire." From here comes the correlation and dispersal of knowledge gained at the battle front.

R. C. Stunkel

Douglas Chicago Factory Starts Producing C-54's

Ten months after construction was started, the $33,000,000 Douglas Aircraft Co. plant at Chicago was ready for a formal dedication ceremony on July 30 and the first of the C-54 "skymaster" cargo planes made in the plant while it was abuilding was ready to take to the air as part of the ceremony.

Originally ordered by commercial airlines, four-engined the C-54 can carry 15 tons of freight or 50 fully equipped soldiers. Tanks may be slung between their landing wheels for transport. Top speed is a military secret.

The new Douglas plant, said to be the largest exclusive cargo plane plant in the world, covers 1,600 acres and has its own airport with four main runways totaling five miles in length. The plant was built almost entirely of wood and plane manufacture has been in progress since the first units were finished.

John D. Weaver is plant manager, aided by John C. Buckwalter, assistant, and James S. Farra, administrative executive.

Woodhead Foresees a 'Recession'

A temporary recession in aircraft manufacturing will come at the close of the war, Harry Woodhead, president of Consolidated Vultee Aircraft Corp., forecast in an address before the Fort Worth, Tex., Chamber of Commerce last fortnight.

"I am being honest with you when I tell you there is bound to be a letdown as we pass from meeting peak demands of the war emergency to readjustment for peacetime." Woodhead told the civic group.

"But this recession will be just as long or as short as we make it," he added. "We are going to have to go out and get business. We must educate people to ship and travel by air. Cities such as Fort Worth must become hubs of small feeder airlines serving the countless small communities throughout the state."

Woodhead declared that Consolidated is investing "neither time nor money in a house of cards."

"One of the things we are going to do when this war is over is to reeducate the world to the fact that the airplane is an implement of international good will, understanding, and peace," he said. "Its use to kill and destroy during the war has given everyone a distorted viewpoint. We are going to show the world that the airplane can keep the peace after we have shown it can win the peace."

He outlined the promotional and educational campaigns Consolidated has launched "to teach everyone about the new world which has come to them as the result of the air age."

The world will need an international air force of 30,000 aircraft to enforce the peace—calling for replacements of 6,000 planes a year, Woodhead predicted.

"We will need thousands of airplanes in an air force of our own to protect us, to train new pilots, and for research," he said. "We must not be caught unprepared again. We have proved the fallacy of building only a few hundred planes for military purposes each peacetime year. We have been caught twice in two generations. It is inconceivable that we should allow this to happen again."

NWLB Uses 'Little Steel' Formula In Controlling Wages

A definitive policy for control of wages has been established by the National War Labor Board as a result of Executive Order 9328. Vice chairman George W. Taylor explained that the Board now has the dual problem of stabilizing overall wages at the Sept. 15 level and of stabilizing individual wages in relation to each other.

The "Little Steel" formula, which allows overall wages to be raised up to 15 per cent, has been adopted to adjust inequities. However, NWLB does not believe it is mandatory to raise wages 15 per cent in all cases.

"Where the peacetime standards of the employes involved in a case were relatively high compared to other employes in related work and where further general increases would create unstabilizing inequalities, NWLB has refrained from approving the full allowance possible under the Little Steel formula," NWLB spokesmen say.

The Board asserts that "wage stabilization concerns not only the general level of wages but the balance of relationships between all the various wages paid." Under the "hold-the-line" order, NWLB may bring wages up to the minimum of the "sound and tested rates" for the same industry in the same labor market area. To accomplish this, wage-rate brackets are established including maximum and minimum "sound and tested rates." Rates which fall within the bracket are not subject to change except under the Little Steel formula. But when a company's rates are below the bracket minimum, NWLB may increase them to the minimum regardless of the formula. The establishment of brackets has given NWLB a yardstick which enables it to make rapid decisions and consequently to reduce substantially its backlog of undecided cases.

Finally, the Board has adopted a "substandard level" policy as an administrative device enabling another category of increases to be approved beyond the formula. In rare and unusual cases where critical war production cannot otherwise be obtained, increases may be granted in one industry not in excess of the minimum of going rates in other comparable industries, with the approval of Economic Stabilizer Vinson.

'Skyways to Peace': The exhibition, so named, at the Museum of Modern Art in New York is being viewed by H. J. Maynard, Jr., left, and Joseph T. Gueting, Jr., recently re-elected president and vice president, respectively, of General Aircraft Corp.

Bell Creates Three Divisions

Whitman

Beard

Woodson

Three divisions have been created within the Bell Aircraft Corporation organization to handle (1) construction of fighter planes on the Niagara Frontier; (2) manufacture of ordnance equipment; and (3) production of super-bombers at Marietta, Ga., it is announced by Lawrence D. Bell, president.

Ray P. Whitman, first vice president of the company, becomes manager of the Niagara Frontier Division in addition to his present duties. Omer L. Woodson, vice president and assistant general manager, becomes vice president and manager of the Georgia division. Carl F. Lozon continues as manager of the company's Ordnance Division, and Charles L. Beard, secretary and treasurer, assumes new duties as administrative assistant to Bell. Beard heads the home office staff which will coordinate activities of all plants.

Whitman is a co-founder of Bell Aircraft. He was formerly vice president and assistant general manager of Consolidated Aircraft Corporation.

Financial Transactions Involve $3,000,000 Per Day at Douglas Aircraft

The financial transactions of Douglas Aircraft Co. require the services of a small "army" of employes.

Ramifications of this phase of the company's operation were described by R. V. Hunt, vice-president—comptroller of Douglas Aircraft, who daily oversees expenditures of more than $3,000,000—$1,200,000 a day in wages and the remainder in purchase of materials and manufacturing parts, rents, taxes and transportation.

Four thousand men and women work under Hunt to keep financial wheels geared smoothly to expanding production. Only four years ago a payroll of 10,000 was the comptroller's province. Today more than 150,000 workers receive checks in all portions of the world, a fifteen-fold increase.

Eight thousand venders, ranging from huge corporations to small businesses, which in many cases receive financial and business advice from Hunt's department, are carried on the Douglas books.

By Nov. 30, 1943, the end of the Douglas fiscal year, plane deliveries each month will represent $100,000,000 from a backlog of two and a half billion, roughly more than 15% of the country's entire aircraft program by poundage.

Of the 12 planes under production at Douglas, including dive bombers and three types of four-engined planes, there's an average valuation per plane of $100,000.

Hunt estimates the annual gross sales for the current year will reach $900,000,000.

General Names Agency

H. B. Humphrey Company, of Boston, has been appointed to handle the advertising of the General Aircraft Corp., Astoria, Long Island. Sutton News Service, Inc., New York, has been engaged to handle public relations.

Surplus Aircraft Bill Faces Opposition

'It Means Nationalization of Aircraft Industry,' Says One Manufacturer

Postwar disposition of surplus aircraft should be placed in the hands of the Civil Aeronautics Board and not in the hands of a special administrator set up autonomously over a Surplus Aircraft Authority, in the opinion of five out of six aircraft manufacturers commenting on the surplus aircraft bill (H.R. 2959) recently introduced by Rep. Clarence F. Lea (D. Cal.). One manufacturer opposed CAB direction of aircraft disposal.

Several urged that the Lea bill be tabled until the industry has had sufficient time to study it thoroughly. Most agreed that some definite policy, and a well-planned system of handling surplus aircraft after the war, should be established. They felt the bill has too many vulnerable spots and is not the workable solution desired.

One manufacturer termed the bill "one of the most dangerous measures ever proposed."

"It gives dictatorial power over the aircraft industry to whomever is appointed as executive director," he said. "It opens the way for nationalization of the aircraft industry in the event that such a result is desired by the administration which may be in power at the time that the bill is operated. There is no control provided and no checks or balances possible in connection with the acts of the so-called executive director.

"Under Section 1204, the director is empowered to sell aircraft at any price and on any terms without making the terms of such sale public and without advance notice. Obviously, public announcement of such sales and public bids must be mandatory in order to check fraud. Also, under Sections (c), (d) and (e) of Section 1204, the director would be empowered to operate airlines on which he had taken a lien to secure notes covering the purchase of aircraft for use by such airlines. This is obviously a step toward nationalization of airlines.

"Section 1205 gives the director complete control over exports and would permit a denial of the right of the manufacturer to export airplanes if the director decided that such export of new airplanes would compete with his potential sales of surplus aircraft. This is very important in that the existence of the board will ultimately depend upon its ability to sell such surplus aircraft in order that funds may be available for its operation.

"Section 1206, which provides that the board may finance itself out of its own sales, makes the board independent of Congress because no financial control can be maintained through the medium of appropriations. Therefore, no check or restraint is possible over the action of the board for a period of five years. During that time the aircraft industry could be completely eliminated except for certain favored companies who "cooperated" with the board in their actions. Also, this Section sets up a situation wherein the board would be more interested in perpetuating itself through the sale of surplus aircraft than it would in its regard of the public interest in connection with such sales.

"Section 1207 provides for an advisory board, but the advisory board has no authority and there is no directive that its advice be considered.

"Section 1208 completes the picture by providing a very stiff penalty for anyone who in any way acts in a manner that the board may deem to be against its best interests.

"In our opinion this bill is totally unwarranted and is merely an exposition of an attempt to set up a dictatorial power over the aircraft industry. We believe that it should be opposed as strongly as possible."

Lockheed-Vega '43 Output Double That of Year Ago

Lockheed and Vega Aircraft Corporation reports that for the first six months of 1943, sales totaled $330,000,000, double the output of Lockheed-Vega for the same period of 1942. The per centage of profit realized on sales, after reserve and taxes, was described in the report as approximately 2½ per cent the rate shown during the same period of 1942.

Renegotiation contracts in 1942 were completed with an adjustment of $46,000,000. This exceeded the $30,927,180 provided for renegotiation by the company by $15,572,820, the report continued.

"Since renegotiation was effective before taxes, and results in a decrease in income tax and excess profits tax, the liability effect of the final settlement was to increase the company's net liability for taxes and renegotiation adjustment by $3,099,274," it observed. "This net amount was charged against the 1943 income and was partially offset by a transfer from reserve contingencies and postwar adjustment funds in the net amount of $3,083,475."

Lockheed-Vega approves the renegotiation law in principle, but believes that one fundamental weakness is the government's failure to recognize the need for post-war reserves, the report continued. It expressed the hope that Congress would modify the renegotiation law so that industry could carry its responsibilities in peace-time conversion.

Martin Plant Rejects Unions

Employes of Glenn L. Martin Co., Baltimore, Md., on July 16 rejected representation by any union. National Labor Relation Board's regional office said 42% voted against representation by any union, 40% favored the United Automobile Aircraft and Agricultural Implement Workers (CIO), 11% the International Association of Machinists (independent), and less than 1% a local independent union. The CIO union said NLRB would be asked for a run-off election to determine whether the employes want a CIO union or none.

Chief Pilots: Lester J. Holoubeck, right, is the new chief pilot in charge of flight operations for the Lockheed and Vega Aircraft Corporations in Burbank, Cal. He is shown with Elmer C. McLeod, veteran test pilot and new assistant chief pilot, in front of a new Lockheed plane.

Manufacturer Can Obtain Digest of Vested Patents

Airframe and accessory manufacturers are being urged by the Alien Property Custodian to take advantage of opportunities offered in the licensing of foreign-held patents now vested in him.

A digest illustrating and describing more than 600 such patents has been prepared and is available from Kent Wonnell, Chief of the Patent Merchandising Section, Office of Alien Property Custodian, Field Building, Chicago. All vested patents—the bulk of them German and French-held—relating to the aviation field are included in the digest, according to an announcement to *American Aviation*.

To encourage wider use, fees will be reduced on Aug. 1 to a flat $15 for each patent. Licenses for patents held by friendly nationals will be royalty-free for the duration and six months. After the war, reasonable uniform royalties, determined by the Custodian and the licensee, will be established for the life of the patent.

Other legal information may be obtained from Robert W. Wilson, head of the licensing section, and Howland H. Sargeant, division of patent administration, Office of Alien Property Custodian, Washington.

Personal Aircraft Makers Discuss Postwar Markets At Chicago Conference

Manufacturers planning to make personal aircraft after the war met in Chicago July 31 to discuss problems regarding the future of private flying and to determine whether the group should affiliate with the Aeronautical Chamber of Commerce or function as a specialized committee on personal aircraft.

The group also discussed:

1. Obstacles to widespread acceptance of private aircraft.
2. The dividing line between state and federal aviation regulations.
3. Whether makers of fixed wing and rotary wing craft can work together in harmony.

The meeting is believed to have set the pattern for constructive promotion of the small aircraft market.

Beech Output Up

Beech Aircraft Corp., Wichita, Kan., reports that in the first six months of its 1943 fiscal year, production was greater than for its entire fiscal year of 1942, ended Sept. 30. Walter H. Beech, president and board chairman, stated that under present schedules, production for the full 1943 fiscal year will show a 100% increase over the 1942 fiscal year. In addition, he said that a constant program of experimental and developmental work has been carried forward, which will be reflected in Beech's future production of war material, and eventually in the country's postwar output.

The Landgraf Helicopter

A twin-rotor helicopter designed by Fred Landgraf, Los Angeles aeronautical engineer, is attracting the attention of West Coast aircraft experts although it has not yet reached the stage of ground and flight tests. Front and side views of a model of the craft are shown above. Note tricycle landing gear.

Solar Sales $22,000,000

Solar Aircraft, San Diego, Cal., reports sales of $22,422,298 for fiscal year ending April 30, with net profit of $988,824 after all charges. Current assets are $8,601,733 and current liabilities $7,607,528. Earned surplus is $1,067,103.

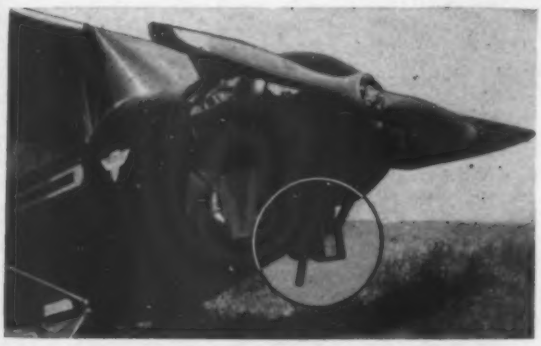
Nearly Thousand Cessna Lightplanes 'on Order' for Postwar Delivery

Nearly 1,000 persons in the United States, Canada, and Latin America, already are arranging for postwar delivery of their own private airplanes, Dwane L. Wallace, president of Cessna Aircraft Co., states. These people, he said, have "earmarked" more than three-quarters of a million dollars in War Savings Bonds under the priority delivery plan first announced by Cessna in its national advertising last March.

"Ever since we first announced our plans for producing a post-Victory 'Family Car of the Air' more than a year ago," Wallace said, "we have been swamped with requests from persons wishing to reserve one of the first models to be delivered. Last March we announced our priority delivery plan under which we assign a temporary priority number to anyone listing with us the serial number of as little as a $25 bond. A permanent number is assigned when the listing of serial numbers and denominations of War Bonds reaches $500. So far the average initial registration has been $800."

McCULLOCH ENGINEERING CORP., Milwaukee, Wis., manufacturers of superchargers, has been acquired by Borg-Warner Corp., through cash purchase of all McCulloch's stock, according to B-W. Robert McCulloch remains as president and director of the firm, and "will have active charge" of operations.

NOW—You Can Enjoy Safe Flying!



PATENT PENDING

INSTALL The Automatic CARBURETOR HEAT CONTROL

with Air Cleaner

ADVANTAGES:

1.—Primary reason for design was to eliminate forced landings caused by pilots forgetting to apply heat on power off manouvers.

2.—Automatically admits heat to carburetor when engine speed drops below normal cruising speed and automatically admits full cold air to carburetor when throttle is open.

3.—Built in air cleaner can be easily removed, cleaned and replaced.

4.—An increase of 15 to 40 R.P.M. results because of the air boost in this unit.

5.—Adaptable to both open and closed type exhaust heaters.

6.—Air valve adjustment for various engines is extremely simple.

7.—Unsolicited letters from users claim this unit has eliminated most of their icing conditions.

8.—This life saving unit is now available for installation on all airplane engines from 40 to 90 H.P. only.

Write for Bulletin that Gives Full Information

C & H Manufacturing Co.

308 East Colorado Street, Glendale, Calif.

Million Volt X-Ray Laboratory Nearly Completed on Coast

COMPLETION next month of a 1,000,000-volt industrial X-ray laboratory in Burbank, Cal., will bring a new major facility to West Coast aircraft manufacturers which will help them maintain high standards of production despite the speed-up in war demands.

Reflecting the industry's expansion and development in new alloys, materials and stressed parts, Triplett and Barton, Inc., which in 1935 began aircraft diagnosis and testing in the West, will operate the laboratory as part of its scientific work for 356 companies.

Eight years ago an $8,000 investment in equipment enabled the firm to handle analyses for a few manufacturing concerns. Today, an investment representing nearly half a million dollars, insures the same high standards for aircraft production from new sources of materials and companies brought into the field by the impact of war production.

Steel and aluminum alloys, plastics, synthetics, plywoods and oils go through the present laboratories for an average of 3,000 tests each month. When a new weld is examined, 25 per cent of all high-stressed parts and 10 per cent of all medium stressed parts go under the X-ray.

In the laboratory division, a new alloy undergoes examination by the spectograph to determine the elements present. This gives both qualitative and quantitative analysis through wave lengths recorded on film. A variation of the old astronomical prism, a spectograph can pick up 70 elements in normal steel.

Microscopic inspection for granual make-up, chemical analysis, heat, hardness, surface testing equipment, and physical testing machines to record tension and compression characteristics under 120,000 and 300,000-pound loads can explore the proposed material or part.

Automatic X-ray machines, developed and patented by the company, have speeded pictures in three-to-one ratio over the old method of lead-lined rooms. Now 400,000 volt machines record heavy steel castings; 250,000 volts, the medium alloy; and 140,000 volts, the light alloy.

X-ray tubes, specifically constructed for industrial work, are manufactured in the laboratory.

Into this wartime speedup in production accuracy, which finds testing on a three-shift basis, will come the million-volt plant located in Burbank, near the company's headquarters. Additional laboratories are located in Seattle for Boeing and in Wichita for Beech and Boeing.

T. A. Triplett, president in charge of engineering, and V. P. Barton, vice-president in charge of production and personnel, are the engineers who founded the company. Other officers are R. E. Hiller, secretary, in charge of the testing laboratory, and E. C. Pearson, treasurer.

BOEING AIRPLANE Co., Wichita Kan., announces that employes who have been continuously employed by the company for one full year by Nov. 30, 1943 will be eligible for vacation with pay, or extra pay in lieu of a vacation.

X-Ray Wall: Twenty-inch concrete walls will be required to house the 1,000,000-volt X-ray machine soon to be installed in a Southern California laboratory by Triplett & Barton, aircraft parts and materials analysts. V. P. Barton, right, vice-president of the firm, points to a recently completed section of the concrete building.

Aeronca Develops New Light Ambulance Ship

Development of the "first" light ambulance plane has been announced by Aeronca Aircraft Corp., Middletown, O., in disclosing net earnings for the year ended Dec. 31, 1942 of $165,620.30 on sales of $3,263,758.47.

This ambulance ship, designed by Aeronca's Research Institute, company believes "has many uses in communities in the United States . . . (they) can be operated by members of the Civil Air Patrol and made available for emergency use, the delivering of medical supplies, medicine, bandages, and even medical personnel to isolated spots in time of need. Landings can be made in small fields adjacent to the scene of the accident or even on the highways themselves."

Aeronca's other light weight ship, a cargo plane, claimed to be especially suitable for "transporting supplies from otherwise inaccessible regions in the theaters of the present war," was described in *American Aviation* for March 15. Another new ship is expected to be announced soon.

No comparison with 1941 operations was made in company's statement. For 1942, $333,147.81 was provided for Federal income and excess profits taxes. Earned surplus since Oct. 15, 1939 was stated as $309,187.66. Balance sheet at Dec. 31, 1942 showed total assets of $2,506,529.24 and current assets of $2,022,068.33, including accounts receivable $1,016,515.74. Current liabilities totaled $1,737,137.54, including accounts payable—trade, $603,734.32.

DOAK AIRCRAFT CO., INC., Torrance, Cal. has established a training school for new workers under the direction of Jack McFall, who has done similar work in public schools. Company also reports plans to publish a magazine for employes under the editorship of Lee Weinstein.

A-36 Performance is Outstanding at Front

The A-36 fighter and dive bomber made by North American Aviation, Inc.—a converted form of the P-51 Mustang—has attracted wide attention for its exploits in the invasion of Sicily and conquest of Pantelleria. Airmen have dubbed it the "Invader" and it is described as a fighter, ground attack plane and bomber, retaining the lines of the fighter.

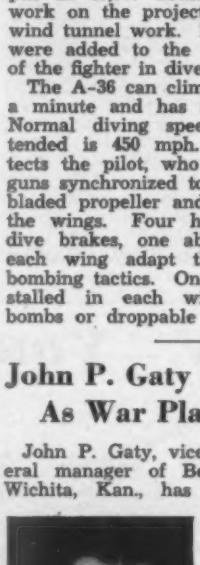
Powered by a 12-cylinder Allison engine, with a flying speed in excess of 400 mph, the A-36 can dive on a target at terrific speed, release its bombs, and then fight it out with fighter planes, according to announcement approved by the War Dept.

After the Mustangs proved their value in combat and as low level attack planes, the Army Air Forces requested North American to build a fighter-dive bomber. Orders went to the project engineering group in June, 1942, and the first dive bomber was flown in October. Engineers put in 40,000 hours of day and night work on the project, including intensive wind tunnel work. Less than 200 pounds were added to the normal gross weight of the fighter in dive-bombing equipment.

The A-36 can climb nearly half a mile a minute and has a 30,000-foot ceiling. Normal diving speed with brakes extended is 450 mph. Armor plate protects the pilot, who has two .50 caliber guns synchronized to fire through the 3-bladed propeller and .50 caliber guns in the wings. Four hydraulically-operated dive brakes, one above and one below each wing adapt the plane for dive-bombing tactics. One bomb rack was installed in each wing to hold either bombs or droppable fuel tanks.

John P. Gaty Appointed As War Plant 'Governor'

John P. Gaty, vice-president and general manager of Beech Aircraft Corp., Wichita, Kan., has been appointed to the board of governors of the Kansas City region of the Smaller War Plants Corp., by Brig. Gen. Robert W. Johnson, chairman of SWPC.



Gaty

In accepting the appointment, Gaty said he felt the problem of small business goes beyond the present war period, and that he was hopeful the SWPC program would be helpful to the many concerns engaged in aircraft subcontracting.

Boeing, Ltd. Gets Contract

Award of a $100,000,000 contract by the U. S. Navy for construction of an unspecified number of Catalinas to Boeing Aircraft of Canada, Ltd., has been reported from Vancouver, B. C., where the company has already built "more than 50" of these planes at its new Sea Island plant. Many of them are already in service with the RCAF.

'Commando' to be Produced in Missouri, C-W Reveals

The Curtiss Commando troop transport plane (C-46) soon will be produced in quantity in a Curtiss-Wright Corp. plant "in Missouri," the company announces. A statement by G. W. Vaughan, president of Curtiss-Wright, omitted any reference to the number of planes to be produced or their rates of delivery because of military restrictions.

Announcement of the expanded production of Commandos recalls the release of information by the Army Air Forces in May that a large number of C-46 planes had landed in India after a record 15,000-mile flight. The Commando has a wingspan of 108 feet, weighs about 50,000 lbs. fully loaded, and is powered by two 2,000 hp. engines.

Aircraft Accessories Buys Stock of West Coast Firm

Aircraft Accessories Corp., Los Angeles, Cal., recently acquired 78.3% of the outstanding capital stock of the Phonette Co. of America, a Los Angeles firm which previously made juke boxes and is now making radio accessories for aircraft.

The corporation paid $21,990 for stock and loaned the company $18,725 with which to pay notes, announcement said. Aircraft Accessories also acquired an option on remaining outstanding stock exercisable through June 16, 1944, at purchase price of $6,980. Randolph C. Walker, AAC president, is new chairman of Phonette Co. board. W. S. Farrell will remain Phonette president. Company plans to return to patented music devices and radio components after the war.

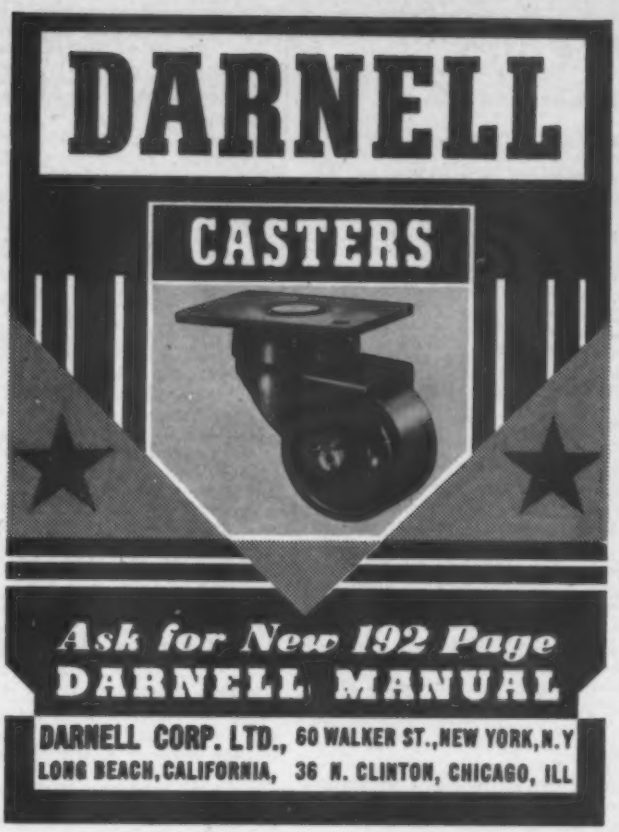
P-38 On Assembly Line

Lockheed's P-38 fighter is now being built on a mechanized assembly line, the company announces. The planes are carried down the assembly floor on a chain exactly as in automobile plants. The mechanized lines move four inches per minute, but a faster tempo will be attained as soon as workmen have become familiar with their assignments, the announcement states. Similar continuously moving conveyor lines are being set up for several of the plane's subassemblies, and another line will carry the plane's two engines to the point on the main line where they are attached to the fuselage.

(In a dispatch from an Allied command post in North Africa July 19, Raymond Clapper, well known newspaper columnist, said: "The most versatile plane is proving to be the P-38. . . . This plane has become a remarkable jack-of-all-trades.")

Republic Appoints Newell-Emmett

Republic Aviation Corp., of Farmingdale, L. I., manufacturers of the Republic P-47 Thunderbolt fighter plane, has appointed Newell-Emmett Co., as their advertising counsel. The company's plans call for an educational campaign beginning in early Fall and involving a broad list of aviation trade magazines, general magazines and a quarterly external house magazine called "The Republic Thunderbolt."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Foley

(Continued from page 56)

"traffic" problems we have discussed, it is appropriate to mention that more and more passengers are commenting on the desirability of personal access to one's baggage, especially on long trips. The availability of such a feature would be little less appealing to the operator who would, we are sure, be glad to have each passenger handle his own luggage. This problem is obviously one of aircraft design, which may be answered by sidewall or floor recesses. However it is handled, it promises to do little to help in the aircraft balance considerations.

We have somewhat neglected the traffic personnel problem in the foregoing thoughts. Yet it cannot be by-passed. We realize that the sales staff which we spot around the world will be the criterion for judgment of U. S. flag air carriers in the eyes of all nations. Our procedures, our safe operation, our service aloft—all these may be impressive, but the personal touch on the ground and the general "national" reaction to the sales force can do much to assure an operator's future.

This fact, we think, highlights the need for particular attention to the personnel policy for international air traffic. Much has been said for the choice of foreign nationals to represent the traffic department in the countries concerned. Ultimately this may be representative of sound policy, but we feel that with present knowledge of the art, the choice of a diplomatic, internationally-trained American sales staff is the answer.

Without pretending to have touched more than a corner of the traffic problem field, time requires that we look at a few of the operations problems. To our thinking most of the operations problems unique to the international operating field are concerned with the crew, its organization, accommodations and the operating technique.

Crew size is the first consideration coming to mind. Certain operators, we feel, place too much importance upon aircraft size as the determinant for crew size, and not enough on route-time as a qualifying factor. Naturally, payload interests demand the fullest utilization of crew consistent with safety, crew rest and health. It is necessary that the point of economic justification for crew spotting as opposed to double crews be accurately determined. With anticipated cruising speeds, non-stop operation of the order of 3,000 miles will continue to demand double crews. In such a case a portion of the passenger accommodations will presumably be surrendered as crew quarters.

The safe, comfortable, efficient functioning of a long range aircraft crew is dependent in part upon aircraft speed. Naturally, the faster the travel the less the fatigue strain. But the limitations of economical speed leave us with operating stretches that demand the ultimate in crew-deck convenience. Design considerations which should be at the top of the cockpit list are: lighting, heating, ventilating, furnishings, sound proofing, intermember communication and the like. Many of these same problems face the domestic short-range crews. Availability of solutions to both groups should be simultaneous.

The lighting problem, from general compartment lighting to individual instrument illumination has been a neglected science and one we can ill afford to neglect. Much is being done (we are told) by the military in improving lighting, reducing glare, and solving allied problems. Let us hope that future transports will reflect these improvements. We have heard enough of transport pilots having to shut off all lights and then observe their instruments by the beam of a flashlight held by another crew member.

Heating, ventilating and soundproofing are obvious necessities in the efficient control room. The obsence or inadequacy of any one of these factors impedes progress, accelerates fatigue and precludes harmonious cooperation.

The details of furnishing should be pointed toward continuous comfort: neither enervating excesses or Spartan simplicity. The seats should be through-ventilated for year-round comfort and the positioning of all furnishings should provide for work-facility as well as crew get-around-ability.

For crew communication, an interphone system or its equivalent is essential. The need for a good dependable connection cannot be over-emphasized. As the crew size grows, assignments become more highly specialized and interdependence of members one upon another is accented.

As a final consideration in this paper, we'll merely touch upon crew organization as appropriate for international or long-range transport. The thought has been advanced that ultimately on very large aircraft, the captain will be an executive officer. In other words, he will have no physical duties, but merely be in command of the operation—the master of the deck, available for judgments and consultation. We'd like some pilot to comment on this proposal. Personally, we wonder as to the value of such an arrangement. If the man in the left hand seat is captain-qualified, as he will have to be, will there be need for another above him? At the time when the executive officer's experience and judgment are most needed, will there be time for him to think and convey his thoughts—then for the other to act?

We are of the opinion that navigators and radio officers should be competent pilots; this arrangement permits rotation of function if desirable, and provides maximum coverage of the pilot stations.

The flight engineer (in spite of the present opposition on the part of certain operators) we visualize as an important crew member. The present functions assigned to him in international operation are that of engine control in flight and maintenance responsibility throughout the flight. We believe that the former function will be accented in the future; the latter diminished to just that portion of maintenance which can be accomplished in flight—dependent upon nacelle accessibility from the control deck, etc. We believe that planned operation should supplant the pioneering which requires the flight engineer to be his own lead mechanic after a long flight.

With reference to the flight engineer's problem of engine operation, we mention in passing that there are two schools of thought as to the proper technique for application to this operating problem. On the one side there are those who believe that the personal touch, manual leaning to a "good to the last drop" condition, is the ultimate in desirability. Opposing them are the believers in the "automatic" control. If the latter procedure is practicable through a good control, we are in favor of it. The advantage of the manual method is strictly a paper one, we think; the introduction of the human variable in such a prominent position in the equation reduces the probability of practice meeting theory's goals. "Pocket gas," adjusted log entries, etc. may be entirely defendable dodges, but they are only evidences of kidding ourselves.

Signs of the Times!

Waco Aircraft Co. reports that its payroll department has been forced to make an appeal to employes to get them to cash their checks more promptly. Hundreds of checks in each payroll are sometimes held for three or four weeks, the company says. The payroll department is annoyed because it is required to make a weekly Bank Reconciliation for submission to the Army Air Force Auditors. When payroll checks are not cashed within one week from the time they are issued, an additional burden is placed on the department inasmuch as each check which is not cleared must be placed on a list showing the date, the serial number, the name, and the amount of all such outstanding checks.

British Constructors Ask Early Conversion Of Large War Planes

No time should be lost in preparing plans for conversion of existing bomber types to civilian airliners, The Society of British Aircraft Constructors said in a recent statement in London.

In its report, which was transmitted to Prime Minister Churchill, the Secretary for Air and other interested officials, the Society stressed that "The war has reached a stage where air transport is of vital importance and our interests will be served best if British designed transport planes are put into early and large production."

For the commercial planes of Britain and the Dominions, the Constructors believe, "Existing heavy bombers with newly designed fuselages will form a good basis for immediate postwar operation with British Overseas Airways and the Air Transport Command."

Further, blueprints for England's first large airport near London ought to be drawn up now with "designers bearing in mind the future demands of rocket planes," the statement said.

Finally, it was pointed out that measures should be started now to ensure that aircraft workers after the war will not be too widely dispersed to other industries, so that adequate administrative and technical skill can be employed to the fullest extent in commercial developments.

Solving a Problem: William P. Lear of Lear Avia, Inc., Piqua, O., is shown working out a gyromatic instrument approach and landing problem. The Learmatic Navigator which he holds won for him the 1940 Frank M. Hawks Memorial Award; the instrument combines the functions of the automatic direction finder and the directional gyro. More than that, it is said to integrate the indications of these two basic instruments and automatically give the pilot a continuous graphic solution to navigation problems.

Bendix Sales Gain 145%; Deliveries Up

Even though net sales and other operating income of Bendix Aviation Corp., Detroit, Mich., for the six months ended Mar. 31, 1943 gained 145% over the similar period in 1942, comparison does "not fully reflect the increase in deliveries," the company states.

At the end of the 1943 period total income was $417,812,579, against $170,420,270 a year earlier. But, "due to the company's policy of passing on to the Government the benefits of reduced costs brought about by increased efficiency," these figures do not tell the whole story.

Net income at Mar. 31, 1943 amounted to $8,190,449, equal to $3.87 a share, common, and contrasts with $8,122,679, or $3.84 in the like period of 1942. This year $100,515,431 was provided for Federal taxes and estimated price adjustments, compared with only $36,261,381 a year previously.

Similarly, at the end of the current period, Bendix reduced earnings by $3,481,836.19, which amount, "representing the postwar income tax credit . . . was set up as an additional reserve for postwar contingencies."

Unfilled orders for the company's communications equipment and precision instruments, and "other industries" at the end of last March were at about the level of the close of the last fiscal year, company explained.

Wins Plastics Award

The annual John Wesley Hyatt Award, for outstanding achievement in the plastics industry, has been conferred on Frank H. Shaw, president of Shaw Insulator Co., Irvington, N. J. Shaw received the award for having developed and perfected the transfer molding of thermosetting plastics, without which the production of many intricate and delicate plastic parts for war planes and industrial equipment would be impossible.

WPB Studies Labor 'Scheduling' And Industry Job Stabilization

By Barbara B. C. McNamee

NEW rumors of a possible "scheduling" of manpower are being circulated in Washington spurred by testimony of WPB Chairman Donald Nelson before the House Appropriations Committee that "scheduling, now going ahead rapidly in the case of component parts needed by two or more of the claimant agencies, may well need to be followed by scheduling of labor supplies."

WMC chairman McNutt told a recent press conference that future "scheduling" of labor would be particularly directed at moving construction workers to production jobs in critical labor areas.

With the pool of available manpower almost exhausted and with operations beginning in many newly-constructed plants, it has become necessary for WPB and War Manpower Commission to study procedure for more careful allocation of workers. WPB officials stress, however, that all planning is still in the discussion stage. They hope to institute any necessary "scheduling" of labor in time to prevent production delays, but they also hope to avoid burdening themselves and the country with a complex system sooner than is absolutely necessary and larger than is absolutely necessary. At present they do not foresee any drastic needs for scheduling in the next few months.

When the time comes, this task will be largely the responsibility of WPB-WMC's joint vice-chairman, Clinton Golden. His appointment was made, according to the official WPB statement, because "having taken steps to assure the most efficient use of materials and machines for war and for essential civilian requirements, . . . (it was necessary) to determine labor requirements."

WPB contemplates scheduling manpower in much the same way as it is at present controlling raw materials, component parts and facilities. That is, all manpower would not be scheduled but only certain skills, or only in areas or industries where the labor situation is tight. Nelson believes the need for scheduling "will become more acute and more critical as the shifting of production from one military product to another becomes more prevalent." He foresees the necessity "for extensive shifts within the field of munitions production. Cancellation or termination of some contracts, in order to accommodate productive resources to changes in military demands, will impose upon WPB the necessity of anticipating in precise terms the time and nature of shifts in the corresponding productive labor forces."

It is anticipated that most of the "scheduling" will be done through WPB's industry divisions, especially in the regional offices. McNutt, however, stated that scheduling would work under the established WMC procedure of making allotments of available manpower among the critical shortage areas. Nelson testified "that he did not know exactly where the dividing line would fall between WPB and WMC in assuming responsibilities for control of labor."

A priority system will have to be worked out within a region where labor is tight, whereby industries may be rated according to their necessity to the war effort. Within each industry, individual factories in the regions will also have to be rated. Aircraft companies, under the proposed plan, would be given an "A" rating, tanks, a "B", and jeeps, presently the least essential, a "C". Within the aircraft industry in this region, one of the companies might manufacture bombers, one pursuit planes and one trainers. The bomber company, because bombers are now the most critically needed aircraft, would be rated "A-1", the pursuit ship plant would get an "A-2" and trainers an "A-3". When welders applied to the U.S.E.S. for jobs, they would be sent to the "A-1" company first.

Some officials indicate that companies would be rated on the basis of their development and utilization of replacements schedules and training programs, as well as their importance to the war effort. They also say some sort of agreement would have to be reached between the Army, Navy, WPB and other procurement agencies for awarding contracts to certified companies.

It is expected that cut-backs in certain phases of production and the release of many construction workers with the tapering off of the facilities program will make additional labor available. A "Scheduling" program would facilitate direction of these workers into the most essential production jobs. WPB favors converting plants whose present contracts are eliminated due to changing requirements of war to production of other essential war materiel. This would reduce the necessity for vast shifts of labor from area to area, although it would not completely eliminate requirements for different skills and therefore changes in the working force. WPB is also advocating terminations of contracts in tight labor areas first, when cutbacks are necessitated in any program.

Simultaneously, WMC is discussing the development of a model employment stabilization agreement. They believe some uniform pattern on which all regional plans could be based is needed to establish identical phraseology and identical principles with minor variations only, to fit local problems. Along with the standardization of stabilization agreements may come an attempt by NWLB to stabilize wage scales within each industry; discussion for such procedure in the aircraft industry is being conducted. Equalization of wages would open the way to scheduling of labor.

BELL AIRCRAFT CORP., Buffalo, N. Y., has announced that its Washington office has been changed to 1025 Connecticut Ave., Washington (6), D. C. It was formerly at 104 West Bellefonte Ave., Alexandria, Va.

Details of Truman Aviation Report

(Continued from page 16)

will greatly simplify and facilitate the training of crews and the establishment and maintenance of repair depots.

The efficiency of several of the large number of different types of planes that are being produced has never been proved on the fighting front and others are relatively obsolete.

The excuse given by the Army and Navy for continuing production of a wide variety of types of aircraft instead of concentrating production on a few of the best types was that they believed it necessary to allow established companies to produce whatever they said they could produce in order to get quantity production as soon as possible and that delays would be incurred if there were a switch in production. Such a policy was a "great mistake." General Motors Eastern Aircraft Division, in transforming its Linden automobile plant into a successful producer of Grumman fighters, has indicated that great changes in production can be accomplished with facility.

Aluminum sheet will not be a bottleneck in aircraft production of the future, the Committee has been assured. Charles E. Wilson, Aircraft Production Board Chairman, has given special attention to the most critical items, namely, extrusions, forgings, and castings. Additional extrusion capacity has been created and other steps have been taken to overcome shortages of aluminum parts.

The difficulty of obtaining and keeping a sufficient number of skilled supervisors to take care of the ever-expanding production in aircraft plants has been "as much due to the failure of the aircraft plants to devise the proper method of classifying their employes and to provide draft boards sufficiently in advance with adequate and fair information on which they could reasonably base deferments, as it has been due to an unwillingness on the part of the draft boards to recognize the importance of the work."

Certain aircraft plants have experienced manpower difficulties because of their inability under existing regulations to make proportionate wage increases. This was particularly true of Lockheed Aircraft Corp., where increases in the hourly wage rates paid and the inability to obtain permission to make proportionate increases in the wages paid supervisors and foremen frequently resulted in responsible men receiving salaries less than subordinates two or three grades below them. Higher wages paid by other war industries, such as shipyards, in the locality have added another difficulty to the manpower problems of aircraft plants.

An enormous waste of manpower with the resultant increased dollar cost on contracts has occurred in certain instances in the aircraft industry when workers were hired in huge numbers before there was anything for them to do. The reasons for this varied. Sometimes, as in the case of the Columbus plant of the Curtiss-Wright Corp., it was due to the inability to produce a plane which would meet the requirements of the service involved; sometimes it was due to the necessity of incorporating modification required by the commanders at the fighting fronts; sometimes it was due to an inability to make the engines and parts that were needed; and sometimes it was due to faulty plans which the management had made for starting and organizing production. In all cases, it resulted in enforced idleness which led the workers to suspect sabotage and which materially decreased their efficiency as workers.

Tests have established the practicability of the helicopter and opened the way for the utilization of its unusual advantages for many war purposes.

The advantages of its ability to rise and descend vertically and hover are obvious. Equipped with pontoons it can land on almost any conceivable surface, making even the most inaccessible locations easy to reach. The importance of this cannot be over-estimated.

The helicopter can be operated satisfactorily under most conditions from the deck of a ship, it was demonstrated by tests conducted May 6 and 7, 1943, jointly by the War Shipping Administration, the Army Air Forces and the Coast Guard. This has opened the possibility of its successful use in convoying merchant vessels. Submarines are most dangerous to merchant ships in the centers of oceans where it is impossible to provide protection by aircraft. If the helicopter, carried on merchant ships, can bridge this gap, it will furnish a great contribution in the anti-submarine warfare. Even if the helicopter could not carry enough bombs actually to engage the submarine in combat, it would be performing a valuable service simply by patrolling and spotting submarines and forcing them to remain submerged in areas surrounding the convoy.

The conclusion of the Navy in 1937 that it not only would not finance any attempt to build rotary-wing aircraft, but that it was not even interested in such craft beyond the possibility of noting the progress made by others, it appears, is still the opinion of "some Navy officials."

Publicity stories have, unfortunately, created the impression in the public mind that the Navy not only developed the helicopter, but even has helicopters in use as an anti-submarine weapon. The International Nickel Co., Inc., spent $80,000 on Nationwide advertising, approved by Navy Public Relations Office, falsely stating that "Today helicopters shadow subs." The fact is that the Navy today has no helicopters, nor until the last few weeks has any Navy officer flown one. The Navy is awaiting delivery of a helicopter procured by the Army and when it is delivered expects to make tests. The responsibility for these tests to be in the hands of the Coast Guard. It is probable that Navy requirements for the helicopter will be greater than the maximum which any helicopter yet constructed can perform.

The Committee believes that the Navy Dept. should not only not be complimented for any development work on the helicopters, but on the contrary should be censured for not having shown more active interest in its development. Since the Navy has shown so little interest in its development, it seems to be desirable that consideration be given to placing the program for the development and procurement of helicopters for use in convoy protection in the hands of one of the agencies such as the Coast Guard or the War Shipping Administration, which are directly concerned with the protection of such shipping and which have shown a much greater interest in the use of the helicopter for this purpose.

The War Dept., however, took a very active interest in the development of the helicopter. The first successful helicopter was built at a cost of $260,000, of which the War Dept. provided $60,000. This and all successful helicopters to date have been built under the direction of Igor Sikorsky of United Aircraft Corp., who deserves great credit for his work in this field. Credit should also be given Col. H. F. Gregory of the AAF Materiel Command and to Brig. Gen. F. O. Carroll, who as Gregory's superior, encouraged him to continue his work with the helicopter.

The AAF should be given credit for having gone outside its field to do experimental work in a field in which it should have been carried on by the Navy, but which due to its lack of interest in the helicopter the Navy failed to do.

The Army is re-considering its glider program, as a result of recent information from the fighting front that gliders with higher landing speed can be used.

This would enable the Army to design gliders that could be towed without overheating the engines of towing planes. When planes are throttled down to the speed at which gliders in the Army's present program, can be towed, engines were overheated. For this reason the Army cut back its glider program.

The Navy's amphibian glider which can be landed either on water or on land generally has shown a better performance than the glider which the Army has placed in production.

Army Aircraft

Four-Engine Bombers

The performance of both the Boeing B-17 popularly known as the Flying Fortress, and the Consolidated B-24, popularly known as the Liberator, is well known. Production of those planes by both Boeing Aircraft and Consolidated Aircraft has been excellent. The Douglas Aircraft and the Vega Aircraft Co. have also turned in good records in producing the Boeing B-17.

The Ford Motor Co. was relatively very much slower than had been expected in getting into production on the Consolidated B-24. On numerous occasions the committee checked the progress being made by the Ford Motor Co., not only with company officials but with Army and War Production Board officials, and insisted that additional action be taken to expedite production. The building of as huge and complicated a device as a B-24 airplane in large numbers presented many problems, and some delay had to be expected. The production line was set up similar to an automobile assembly line, despite the warnings of many experienced aircraftmen. From the standpoint of the time factor to reach reasonable production goals, this was probably a mistake, because the Ford Motor Co. had not had extensive prior experience in the airplane field and because, even in the automobile field, the assembly line technique was developed and applied over the years without an attempt to improvise it overnight in one single step.

This resulted in slower progress at the beginning, but should result in increased production at a later date, providing there are not too many modifications and changes. It is probable also that the Ford Motor Co. did not take full advantage of the opportunities to send production engineers, layout men and production supervisors, as distinct from designing engineers, to the Consolidated plant at San Diego to find out how the specific work to be done by them was being accomplished at San Diego.

The production problems of the Ford Motor Co. were further complicated by the changes in its contracts and schedules. Originally, it was expected only to produce knock-down subassemblies for final assembly by Consolidated and Douglas at Fort Worth, Tex., and Tulsa, Okla., respectively. This was changed, at the suggestion of the Ford Motor Co., to provide for final assembly of part of the planes by the Ford Motor Co. Still later the entire program was substantially increased.

The Ford Motor Co. was also hampered by the fact that several hundred modifications were ordered to be installed in the plane and that there necessarily was a time lag between the time when such modifications were being discussed and developed by the Army and Consolidated Co. and the time when the actual detailed blueprint specifications reached the Ford Motor Co.

Additional difficulty was encountered because the plant was located before the scarcity of gasoline and tires made it difficult to obtain workmen in competition with other more centrally located plants.

The Ford Motor Co. was not able to furnish parts which it had contracted to furnish for assembly by the Douglas Aircraft and Consolidated Aircraft Companies at plants specially built in Tulsa, Okla., and Fort Worth, Tex., respectively. As a result, the Army was compelled to switch the Tulsa plant to other work, and the Consolidated plant at Fort Worth has proceeded far behind schedule.

Until recent months, the Ford Motor Co. had not produced at Willow Run a plane which was capable of use at the front. The planes produced were used for training. The reason for this was that in order to get the plant into production and to permit the company to obtain the experience therefrom that would enable the plant to operate efficiently, the Army Air Forces temporarily "froze" the model and permitted production without the incorporation of modifications considered essential for use at the fighting fronts.

The committee has been informed, however, that recently great progress has been made by the Ford Motor Co. at the Willow Run plant, and that it is now producing in substantial numbers planes which, with the average amount of modification, can be used effectively at the fighting fronts. This has been achieved, in part at least, by the subcontracting to other plants of the Ford Motor Co. of portions of the work which originally had been expected to be done at the Willow Run plant. A few parts are also being made or assembled by other firms in the Detroit area.

Two-Engine Bombers

The B-25, produced by the North American Co., popularly known as the Mitchell, has proved to be a valuable plane, and the rate of production is very substantial.

The B-26, produced by the Glenn L. Martin Co., popularly known as the Marauder, has had many difficulties. It has high performance both in speed and in load-carrying capacity, and, according to most reports, is an exceptionally fine plane in the air. However, the plane is unsafe when operated by any pilots except those specially trained for its operation, because of unusual difficulties in landing and take-off. It has had a higher accident rate than the B-25, produced by the North American Co., the Army's other plane of comparable size and performance. As a fighting airplane, most pilots who know it like it, and improvements have been made on it. It has accomplished many important missions. However, the difficulties with the plane and the high cost of production and maintenance are such that the Army plans to taper off its production and to use the Martin facilities in Baltimore, Md., and Omaha, Nebr., to produce other types of planes.

In the two-engine light bomber class, the Army has the Douglas A-20, popularly known as the Havoc, the Douglas A-26, and the Martin A-30.

The Douglas Havoc is one of the best-liked planes that has been built in this country. It has performed a large number of tasks, including night fighting, low-level bombing and strafing. Production has been very substantial. The Douglas A-26 is an improved version of the Havoc.

The Martin A-30 is a less satisfactory but usable plane which has been in production since early in the program. It was originally built for the British and French.

One-Engine Dive and Attack Bombers

The Army has the Douglas A-24, popularly known as the Dauntless, the Curtiss A-25, the Army's version of the Helldiver, the Vultee A-35, popularly known as the Vengeance, and the North American A-36.

The Army has concluded that it will have little need for additional dive bombers for the reason that dive bombers cannot be operated unless there is a clear air superiority and then, only when the ground forces are not adequately equipped with antiaircraft equipment.

The Douglas A-24 is an Army version of the Douglas SBD dive bomber, which was built for the Navy in Santa Monica prior to 1941. These two Douglas planes, one for the Army and one for the Navy, have carried the brunt of the dive-bombing work which has been accomplished by our armed forces to date.

The Curtiss A-25 is the Army's version of the Navy's SB2C Helldiver manufactured by Curtiss at Columbus, Ohio. The Curtiss A-25 is manufactured at St. Louis, Mo., and the program will be greatly reduced both because of the Army's opinion that the dive bomber is not valuable for most Army purposes and because of the inability of the company to date to produce usable planes. This matter is described in much greater detail in the section devoted to the Curtiss-Wright Corporation.

The Vultee A-35 is a plane which was previously manufactured for the British by Vultee and Northrop. Although a large number are on the program, it is planned to reduce substantially the number to be produced and to substitute another plane.

The North American A-36 is the P-51, or Mustang, equipped with bomb racks. When it became apparent that the Rolls-Royce engine should be substituted in the Mustang for the Allison engine in order to enable the P-51 to function as a first-class pursuit plane, slight changes were made on the P-51's which were being produced with the Allison engine, and it was designated as an attack-bomber until such time as the Rolls-Royce engine could be run into the production line. The Army has informed the committee that as an attack bomber at low levels this particular plane, equipped with the Allison engine, has done excellent work so that both versions of the plane have been valuable.

Two-Engine Fighters

The Lockheed P-38, popularly known as the Lightning, had many difficulties at its inception, but those difficulties have been overcome and a large number of the Lockheeds have been used on various fighting fronts with spectacular success. It has proved to be a very fine plane.

The Northrop P-61 is another two-engine fighter produced for the Army, but progress has been very slow and the plane is far behind schedule. It was intended for use as a night fighter.

One-Engine Fighters

The Army concentrated on the Curtiss P-40, popularly known as the Warhawk and the Bell P-39, popularly known as the Airacobra . . . The Bell Airacobra has performed very good service in Russia, which has expressed a definite preference for it over the Curtiss P-40. An improved version of the Bell P-39 is under construction. Both planes are limited to use in low altitudes and were designed for use with large land armies locked in combat.

The North American P-51, popularly known as the Mustang, is superior to either the Bell Airacobra or the Curtiss P-40. Equipped with an Allison engine, it is a good low-altitude reconnaissance fighter and fighter bomber. Equipped with the Rolls-Royce two-stage engine, it is a good medium-altitude pursuit plane. It has been characterized by both the British and the Army Air Forces as the most aerodynamically perfect pursuit plane in existence. Although this plane was a more recent plane than the Curtiss P-40, it was in production in 1941. In the opinion of the committee, it would have been preferable to increase the production of Mustangs and decrease the production of Curtiss Warhawks.

The Republic P-47, known as the Thunderbolt, is a good fighting plane, especially at high altitudes. The Army was slow to recognize the value of this plane, because of the Army's primary interest in low altitude planes, such as the Curtiss P-40. After belated recognition was obtained, difficulties were experienced in perfecting it for production, which have now been overcome. It has been used in the past several months in England against German fighters, and the committee is informed that its performance is good.

Naval Aircraft

Dive Bombers

The Navy is still of the opinion that it should proceed with the dive-bomber program. This is a question of military tactics on which the decision of the Navy should be final. On the statements of the Navy and Army officials with respect to the dive bomber, it appears clear that great caution should be taken by the Navy to make sure that the program for the construction of dive bombers is not greater than that justified by the Navy's own interpretation of its technical value. At present such program calls for the production of many thousands of planes, a figure which is justified by including heavy allowances for attrition and training. The committee believes that the Navy should reexamine its dive-bomber program and make certain that it is no larger than necessary.

The Douglas SBD, popularly known as the Dauntless, has to date been the only dive bomber which has been successfully used in large quantities by the Navy. An improved version of the Douglas SBD is being built. It will be known as the Douglas SB2D. The Navy reports that it is expected to be a splendid plane of high performance.

The Navy's experience with the Curtiss SB2C Hell Diver was unfortunate. If the Navy really had use for the number of Hell

(Turn to page 70)

1 Atlanta, Ga. ★ The Ansley
2 Savannah, Ga. ★ The Savannah
3 Birmingham, Ala. ★ The Tutwiler
4 Greensboro, N.C. ★ The O.Henry
5 New Orleans, La. ★ The St. Charles
6 Nashville, Tenn. ★ The Andrew Jackson
7 Montgomery, Ala. ★ The Jefferson Davis

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Truman Criticizes Curtiss-Wright

(Continued from page 16)

Curtiss-Wright received "too many contracts, with the result that its engineering departments and skilled personnel were spread too thin", the report concluded.

The corporation received war contracts amounting to $4,717,500,000 in the period from June, 1940, to March 1, 1943, it disclosed and commented:

"This enormous portion of the war program was granted to a company which as of December 31, 1939, reported a net worth of only $81,055,029 and a net profit after taxes for the preceding year of $5,218,258".

Contending that the P-40, "Warhawk", is inferior to other fighters produced in America, the report commented as follows:

"The largest number of planes which have been produced by Curtiss-Wright are the P-40 fighter planes . . . These planes have performed valuable work on the various fighting fronts, but were relatively obsolete at the beginning of the war and of much more limited value than other fighter planes produced by other American companies and by the British. Many more P-40 planes were produced than any other fighter plane, and the facilities for producing them were expanded sooner and in larger volume than the facilities for producing planes of greater merit. Pilots and repair crews were trained to use the P-40s, and repair parts for them were produced and sent abroad. The result was that when the Army, at the comittee's recommendation, agreed to eliminate the production of P-40s and td substitute in the Curtiss-Wright plants a better plane to be selected by the Army, the argument was raised that to do so would result in a substantial lessening of production at a time when planes were vitally needed by the Russians and in North Africa.

"The Army did order the substitution of the Republic P-47 for the P-40 in the Curtiss-Wright plant, but after work in that direction had been commenced, ordered the continued production of P-40s . . . The later decision may have been necessary, but the Committee regrets the earlier decisions which concentrated so large a portion of production on a plane which, although usable, is regarded by the Russians, English, and American forces as at best a second choice. Curtiss-Wright was also permitted to make a number of modifications which did improve its performance. It was also permitted to attempt to make major modifications on the P-40 in the hope of being able to produce a plane which would compare not too unfavorably with the North American P-51, popularly known as the 'Mustang', which is regarded aerodynamically as one of the finest, if not the finest plane of its type in the world . . . Curtiss-Wright was also given a large contract for a new Curtis-Wright fighter to be known as the P-60 (since discontinued) and three of the nine experimental contracts for the development of one-engine fighters. In addition, it was given one of the four experimental contracts for the deveopment of two-engine fighters despite its lack of experience in the field and the success of the Lockheed P-38, popularly known as the 'Lightning'."

"Millions" have been "wasted" on Curtiss-Wrights program for production of the SB2C, "Helldiver," and "not a single usable plane has yet been produced", according to the Truman report, which said:

"In the case of fighter planes where Curtiss-Wright had a usable plane approaching obsolescence the bulk of the contracts were given to Curtiss-Wright, but in the case of dive bombers, where the Douglas SBD dive bomber, which has provided the dive bombers for the Navy battles to date, an experimental plane designed by Curtiss-Wright was selected as the dive bomber to be produced in greatest numbers. This Curtiss-Wright experimental plane was designated SB2C and has been popularly referred to as the 'Helldiver'. Many thousands of this plane were to be produced for the Navy in a new plant to be built by Curtiss-Wright at Columbus, Ohio, at an expense to the government in excess of $27,000,000 . . . A large number of such planes were also to be produced in Canada by Fairchild Engine and Airplane Corp. and Canadian Car and Foundry. Many more thousands of an Army version of this same plane designate as the A-25 were to be produced by Curtiss-Wright at St. Louis, a plant originally built for other purposes.

"This was a most unfortunate decision as a result of which many tens of millions of dollars have been wasted. The present opinion of the AAF is that dive bombers cannot be used against land forces except where there is clear superiority of the air and even then would be effective only in those cases where they are not opposed by effective antiaircraft fire. The Army has assured the committee that steps are being taken to eliminate the production of dive bombers at St. Louis and to make some worthwhile use of the plant facilities there, probably by producing . . . (the) . . . C-46, 'Commando', . . . There are at present in the St. Louis plant approximately 16,145 workers receiving a weekly payroll at the expense of the government of $778,011. Of those approximately 117 are paid more than $5000 per year. As of June 26, 1943, the government had made advance payments against the A-25 contract in the amount of $62,500,000. Of this amount $50,000,000 had been expended."

The report questions the wisdom of the Navy's plans for continued procurement of large numbers of dive bombers and announced that the Navy "has promised to re-examine and reduce the program for the production of the SB2C . . . at Columbus, Ohio."

Although production of "Helldivers" was to "have been commenced by Curtiss-Wright at Columbus in December, 1941 . . . production did not actually commence until September, 1942," the report pointed out. "It has been hopelessly behind schedule and to date the Curtiss-Wright has not succeeded in producing a single SB2C which the Navy considers to be usable as a combat airplane."

In addition to the moneys expended at St. Louis on the Army version and in Canada at other plants to produce the same plane, and in addition to the $27,000,000 cost of building the plant at Columbus, advances have been made on the SB2C contract at Columbus in the amount of $98,484,238, according to the report.

The Wright Aeronautical Corp. plant at Lockland, Ohio, was "producing and causing the government to accept defective and substandard material", the report charged, claiming that an Army investigating board has concurred in its findings.

The report maintains that this was accomplished in the following ways: by falsification of tests; by destruction of records; by improperly recording results of tests; by forging inspection reports; by failing to segregate substandard and defective material; by orally changing tolerances allowed on parts; by circumventing the salvage committee set-up to pass on the usability of parts outside tolerances; by allowing production to override the inspection force, thereby destroying morale of both company and Army inspectors; by skipping inspection operations.

Brewster Has $1,000,000 Loss on 1942 Operations

Brewster Aeronautical Corp. announced net sales of $60,131,192 for the year ended Dec. 31, 1942, on which net loss of $1,436,369 was sustained, due, partly to $700,000 reserved for possible losses on government contracts, sub-contractors' accounts, etc., and to $449,238 for interest on bank loans, etc. For the previous year, net sales amounted to $27,482,961.

In statement to Securities and Exchange Commission, remuneration above $2,000 for year ended Dec. 31, of persons serving as directors before May 20, 1942, was described as:

J. Griffith Boardman, vice chairman of board of directors, $2,450; Dayton T. Brown, $16,301.76 ($16,000 under a contract relating to aircraft designs); George F. Chapline, president, vice president and director, $31,188.92; J. R. Hunt, secretary and treasurer, director and assistant treasurer, $9,987.12; Ralph M. Singer, president, vice chairman of board of directors and director, $39,996.98, and James Work, chairman of board of directors, director and consultant, $28,095.16.

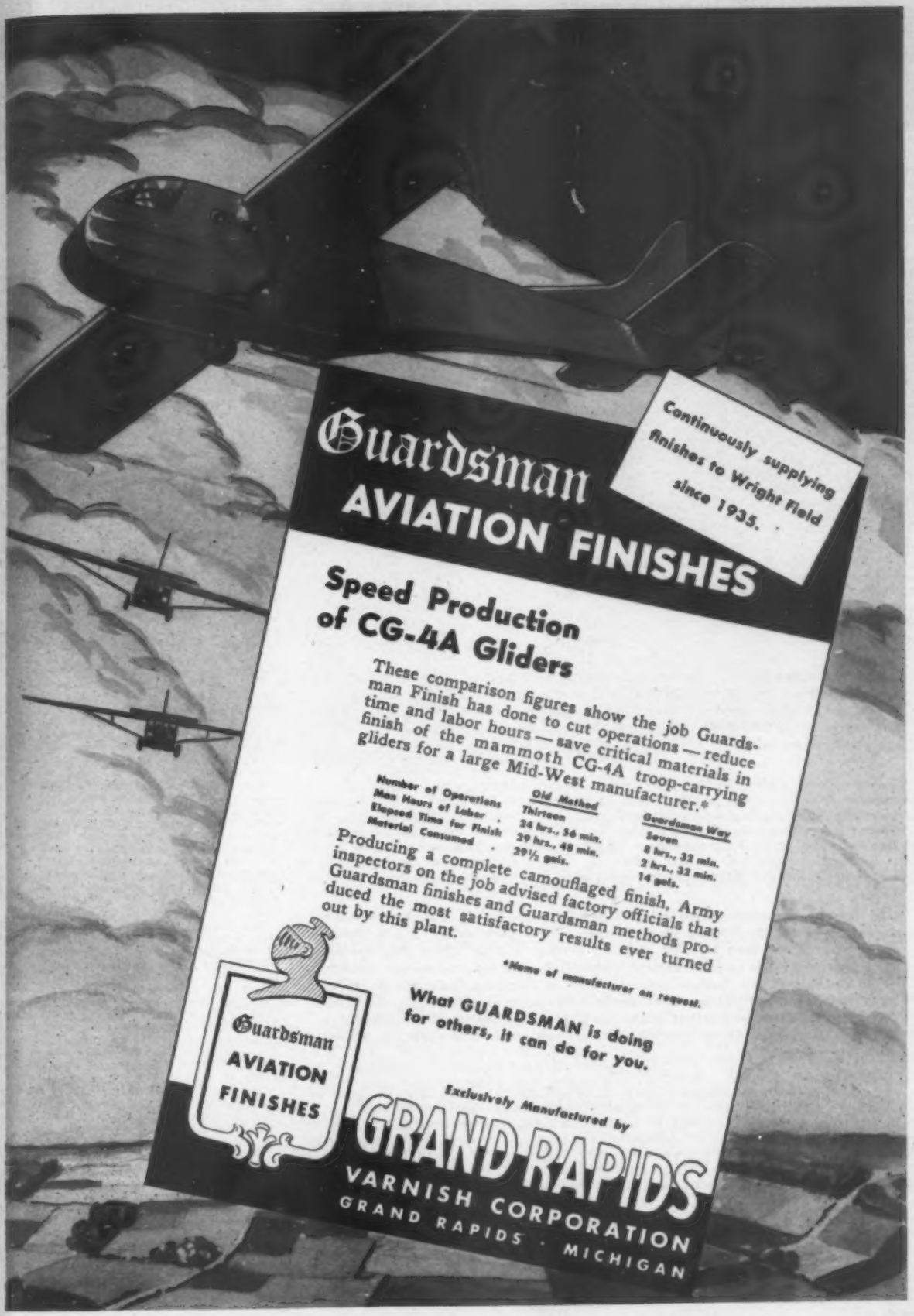
Similarly, remuneration paid to those persons serving as directors after May 20, 1942, was:

C. A. Van Dusen, president and director, $37,473.08 and Russell Van Horn, treasurer and director, $8,107.70.

To certain persons not officers or directors, company paid for services, (exceeding $20,000) in the same period:

Messrs. Olvany, Eisner and Donnelly, $56,000 for legal services, and $3,209.94 for expenses and disbursements; Messrs. Smith, Schnacke and Compton, $27,000 for legal services and $3,599.71 for expenses and disbursements; Messrs. Root, Clark, Buckner and Ballantine, $31,000 for legal services and $2,932.69 for expenses and disbursements.

Consolidated balance sheet as of Dec. 31, 1942, disclosed total assets of $84,241,045.32, and current assets of $81,295,706.35 including unreimbursed expenditures and accrued fees unpaid under United States Government cost-plus-fixed-fee contracts, $17,176,174.55. Current liabilities totaled $80,831,134.51, including notes payable to banks, $24,800,000 and reserve for Federal income taxes, prior years, $764,897.84. Deficit was $1,793,028.73.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AVIATION FINISHES
Continuously supplying finishes to Wright Field since 1935.
Speed Production of CG-4A Gliders
These comparison figures show the job Guardsman Finish has done to cut operations — reduce time and labor hours — save critical materials in finish of the mammoth CG-4A troop-carrying gliders for a large Mid-West manufacturer.*
Number of Operations
Man Hours of Labor
Elapsed Time for Finish
Material Consumed
Old Method
Thirteen
24 hrs., 56 min.
29 hrs., 48 min.
29½ gals.
Guardsman Way
Seven
8 hrs., 32 min.
2 hrs., 32 min.
14 gals.
Producing a complete camouflaged finish, Army inspectors on the job advised factory officials that Guardsman finishes and Guardsman methods produced the most satisfactory results ever turned out by this plant.
*Name of manufacturer on request.
What GUARDSMAN is doing for others, it can do for you.
Guardsman AVIATION FINISHES
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DOWN THE Manufacturing LINE

This proposition of women beginning to outnumber men in aircraft factories has caused a number of executives around the country to dig into their files and come up with pictures proving it's not a condition peculiar to World War II. For instance, Lycoming Division of the Aviation Corp., Williamsport, Pa., had a large number of women in the World War I production battle, and a checkup shows that some of them are still in the employ of Lycoming. There are six times as many women workers

there now as in the first war. "Then and now" pictures (see cut) are an interesting commentary on industry as well as style . . . E. R. Doak, president of Doak Aircraft Co., tells us he has come across a picture of workers who produced the last war's famed "Jennies" at the Liberty Iron Works near Sacramento, Cal., and nearly one-third were women . . . And Douglas Aircraft Co., Santa Monica, Cal., in its latest employe tabulation found 59% were women.

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Reginald Myles Ansett, head of Australia's Ansett Airways, says he found on a recent tour of British factories that 60% of the planes now being turned out are composed of salvaged materials. The British have developed salvage to a fine degree without loss of quality, in contrast to relatively low American salvage practices, he said.

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Plans are moving along for an all-Chinese aircraft factory in San Francisco . . . Information from the Coast is that it will be tied in with Douglas, but will be operated entirely by Chinese management and labor . . . North American Aviation, Inc., announces it is making an effort to employ for its California, Kansas and Texas plants all disabled veterans of the present war whose physical condition and aptitude permit them to handle specialized or light jobs . . . Ryan Aeronautical Co. has hired a visiting nurse to render assistance to workers absent because of illness or accident.

●

In response to employe requests, Boeing Aircraft Co. is now broadcasting music throughout its Wichita plants several periods each shift . . . A library of 400 records has been built up and 20 new ones will be added each month. . . . Another morale builder: Eastern Aircraft plant of General Motors, Linden, N. J., knocked off for half an hour recently so employes could see a special flight demonstration of the Grumann Wildcat they build . . . And the Columbus, O., plant of Curtiss-Wright Corp. has an employe "Year Without a Miss" club for those who've overcome all wartime troubles to chalk up perfect attendance records.

●

A proposal by Republic Aviation Corp. to extend its sick leave plan to cover approximately 14,000 hourly rated operating employes has been approved by NWLB . . . Brewster Aeronautical Corp. says it needs 1,500 new aircraft workers to keep up the schedule-beating pace at its Johnsville, Pa. plant . . . And Brewster President Frederick Riebel, Jr., recently took nearly 800 employes to a special performance of "Star and Garter" at a New York theatre, presenting service pins to those who had more than three years of service with the company . . .

●

L. H. Smith, general manager of Fairchild's Burlington, N. C., plant has been selected by Gov. Broughton as a member of the new N. C. Aeronautics Commission . . . Hostesses have now been appointed in every plant of Aircraft Accessories Corp. to aid new women employes in getting adjusted to their jobs . . .

—C. G.

Truman Report

(Continued from page 67)

Divers for which it contracted, it has suffered a strategic loss as well as a loss of many millions of dollars.

Similarly, the Brewster Aeronautical Corporation, which was to produce the Brewster SB2A dive bomber, turned in a miserable performance. The bomber is a variation of one originally produced for the British, and very few have been acquired for the Navy. The Henry J. Kaiser Co. has taken over the management of the Brewster Aeronautical Corporation, and the Navy reports that it already has made substantial improvements.

Carrier Torpedo Bombers and Fighters

The Grumman Corp. has done an excellent job in building carrier torpedo bombers and fighters for the Navy, and the General Motors Corp. through its Eastern Aircraft Division has done splendid work in converting its facilities and building Grumman torpedo-bombers and fighters for the Navy. These planes are known as the Grumman TBF (the torpedo-bomber), and the Grumman F4F (the fighter), popularly referred to as the Wildcat.

The Grumman Corp. has developed a new fighter, the F6F, popularly referred to as the Hellcat, which is a plane capable of exceptional performance. Similarly, Vought-Sikorsky has developed a fine naval fighter, known as the F4U. The latter company, however, has not made as good a production record as Grumman. A number of other companies such as the Goodyear Rubber Co., at Akron, Ohio, and the Brewster are to make their versions of the Vought-Sikorsky F4U. The Brewster and the Goodyear companies are both behind schedule, and the Vultee is not yet scheduled to come into production.

Navy Flying Boats

The Navy had a very large schedule for the production of flying boats of four-engine and two-engine types, the principal use for which would have been long-range patrol and limited bombing operations. There are definite uses to which such planes can be put, but their functions are extremely limited because of their slowness and their vulnerability to attack. It was most improper to use this type of ship in Alaska for bombing operations against objectives protected by Japanese Zeroes unless it was absolutely impossible to obtain any other planes.

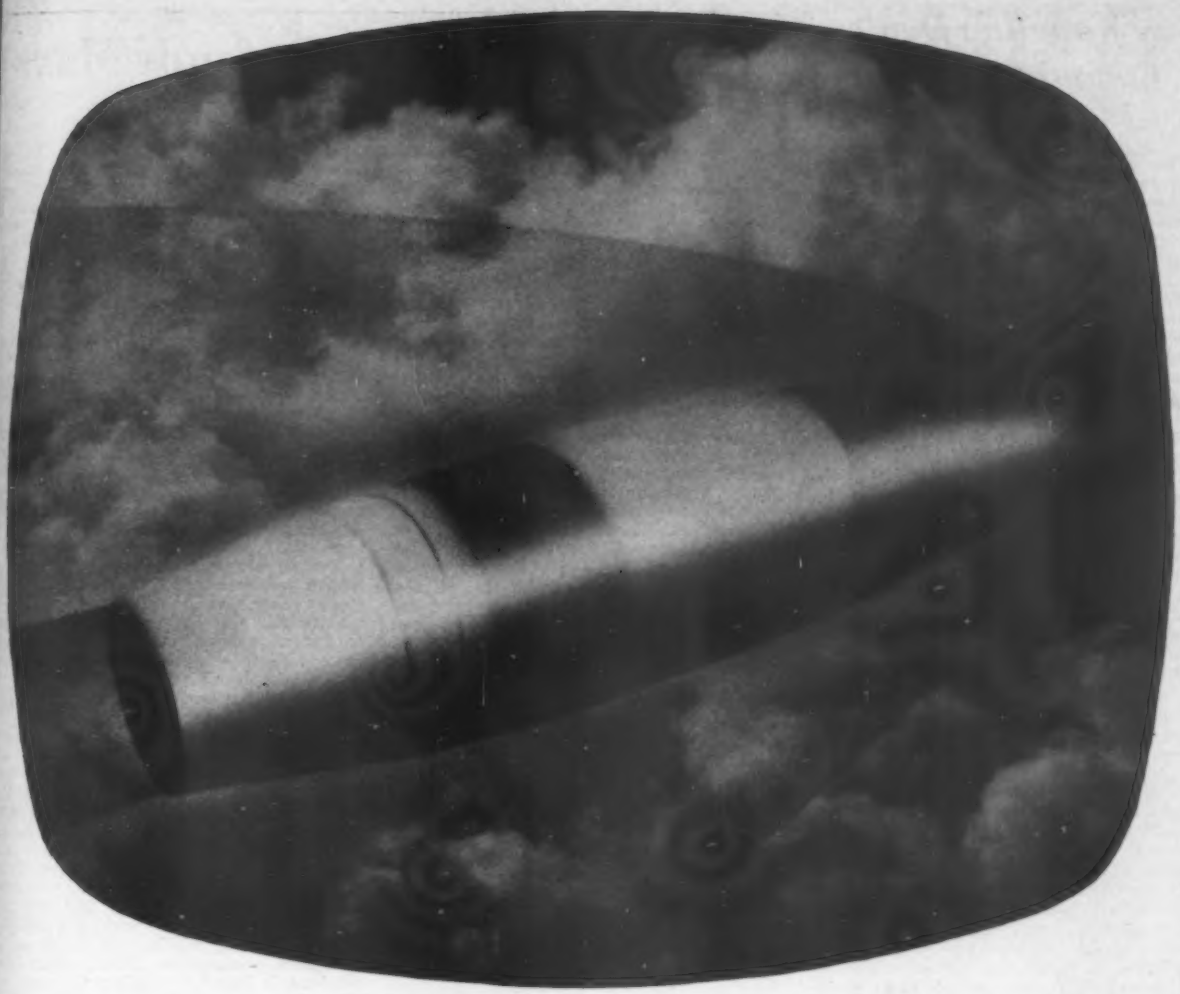
The committee has questioned whether the Navy could use profitably, in the limited functions which the Navy itself has assigned to these flying boats, the tremendous numbers which have been programmed. The Navy has informed the committee that for many purposes it would prefer land-based planes in place of these flying boats, and that to the extent that it can obtain such land-based planes, it will severely cut back the production of flying boats.

The committee questioned the Navy to ascertain whether the load-carrying performance of seaplanes might be improved by reducing the Navy requirements for strength and rigidity. The Navy at present requires flying boats to be able to land in a choppy sea with 4- to 5-foot waves, and in order to make the boat strong enough to do this, it must have a large number of bulkheads, which cut up its space and impair its usefulness. The Navy has always had a predilection toward unusually high-strength factors even at the expense of performance.

In answer to the question as to why such requirements should be made, the Navy stated that, in order to avoid duplication of models, it did not desire to produce flying boats with less strength built into the hulls.

The committee never attempts to substitute its judgment for that of the Department in question on tactical matters and therefore accepts this conclusion. However, even the Navy agreed that, in the case of cargo planes, other considerations should be taken into account and that experimentation work on flying boats should continue.

In that field a plane like the Mars is relatively worthless because of the bulkheads that have been built into it. It has not yet been put to any important practical use.



It traveled more than 99.9% of the way on gasoline

This is a 37-mm. shell just about to complete the last five hundred yards of a five-hundred-mile journey from an American air base to the innards of a Jap Zero.

It got its last burst of speed from a charge of smokeless powder. But most of the way this shell, and the cannon that fired it, the pilot that aimed it and the plane that carried it—all four—were "propelled" by a gasoline engine.

That's why gasoline quality means so much in warfare today. The better the gasoline, the more power engine-builders can design into their engines—and the more shells and bombs we can place where they'll do the most good.

On its own initiative our petroleum industry has for years been engaged in research to improve aviation fuels and methods of producing them. The result is that today American refiners can supply our fighting forces with vast quantities of high-octane aviation fuel.

There is a generous portion of Ethyl antiknock fluid in all U. S. "fighting grade" gasoline. Added to the high quality gasoline produced by modern methods, it boosts its octane (antiknock) rating still higher. Today this super-gasoline "with Ethyl" is helping America fight. Tomorrow, with Victory, it will contribute to American commercial supremacy in the air.

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ETHYL CORPORATION

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Chrysler Building, New York City

Manufacturer of Ethyl fluid, used by oil refiners to improve the antiknock quality of aviation and motor gasoline.

Guy Vaughan Denies Committee Charges

(Continued from page 16)

"In its report the Truman Committee referred to the Curtiss P-40 fighter planes as follows: 'These planes were usable and have performed valuable work on the various fronts but were really obsolete at the beginning of the war and of much more limited value than other fighting planes produced by other American companies and by the British.' Yet the P-40 has been continuously modernized since our entry into the war and it has been the backbone of U. S. Army Fighter squadrons, with a very successful record in every theater of the war, having shot down from 3 to 20 enemy planes for every P-40 lost.

"The company emphatically denies the statement made by the Committee that the Wright Aeronautical Corp. has at any time sold or delivered to the government, or any one else, products known to the company to have contained defective or substandard parts. Wright has categorically denied this specific allegation and insists on its right now and at all times to repudiate as false and unwarranted any such charges.

"It is unfortunate that the Truman Committee has misinterpreted standard and recognized manufacturing and inspection procedures which have led them to conclude that the engines turned out by our Lockland plant are not up to the high standards we have always maintained. Typical of the technical inaccuracies in the Committee's report is the following statement: 'More than 25% of the engines built at the plant have consistently failed in one or more major parts during a three-hour test run.' The term 'failure' in this connection is inaccurate as the actual procedure is one of replacement after test or parts showing evidence of mal-functioning under actual operating conditions. Actually, this procedure indicates thorough inspection backed by a policy of maintaining quality regardless of the quantity of engines produced. As a matter of fact, no engine is allowed to be shipped until actual test indicates all parts are correct and functioning properly.

"This is borne out by the following findings of the Army board, headed by Lt. Gen. William S. Knudsen, which investigated conditions at the Wright Aeronautical Corp's plant at Lockland, Ohio, as quoted in the Truman report. 'In spite of the feeling among some in the plant that many defective engines must necessarily be shipped because of poor inspection, this was not substantiated either by investigation or by the service records produced by the Army Air Forces. The record of engines in service which were assembled at Lockland, Ohio, prior to the period during which it is found that there was unsatisfactory inspection, compares favorably with the record of other types. It must be remembered that after parts are inspected they are tested after assembly into engines and these tests reveal defects not discovered during inspection. Defects may appear during service which even the most rigid inspection and tests will fail to reveal.' This is corroborated by the testimony of Harry W. Lake, Chief Administrative Procurement Inspector and Chief of the Engine and Propeller Unit of the Technical Center, Materiel Center. Dayton, Ohio, who testified, as quoted in the Truman report. 'we went over their inspection quite thoroughly and their inspection is based upon the procedure which has been built up over a period of 23 or 24 years.'

"Engines built at our Lockland plant have played an outstanding part in the war effort to date. They powered the North American B-25s that bombed Tokyo and played a major part in the battle of Midway, in North Africa, and in fact practically every theater of the war. All the information we have been able to obtain indicates that these engines—past and present—have a record at least as good as, if not better than, any other engine for performance, reliability and satisfactory service.

"Curtiss-Wright welcomes at all times official investigation of its activities. We recognize that the Truman Committee in its report is exercizing one of the most cherished rights of our democratic way of life—the right for representatives of the people to openly examine and criticize anything and everything that affects the national life. We believe that this criticism serves a useful purpose in calling attention to things which can and have been remedied in the ever pressing task of producing military equipment of the quality and quantity which the war demands."

C-W Sued; Martin Defends Mars

(Continued from page 16)

"the defendants pursued the following practices: falsification of tests; destruction of records; improper recording of results of tests; forging of inspection reports; failing to segregate substandard and defective material; failing to properly destroy or mutilate such defective and substandard material; orally changing tolerances allowed on parts; allowing production to override the inspection force, thereby destroying morale of both company and Army inspectors, and skipping inspection operations."

Charles D. Hyman, assistant U. S. attorney, said if the suit succeeds the defendants would be subject to a fine of $2000 for each transaction the court held was a violation of the law prohibiting "false, fraudulent and fictitious claims" against the government.

Myron B. Gordon, vice president of Wright Aeronautical, said in full-page advertisements in Passaic County newspapers addressed to employes of the corporation: "I, as general manager, assure you that this corporation has been unjustly accused" and "we are prepared to fight these unjust charges to the finish."

Asserting, "As patriotic citizens and loyal employes of this corporation, you should know certain facts in connection with this matter", he declared: "We never have and never will sacrifice quality in our products. We have categorically denied the specified allegations and insist on our right now and at all times to repudiate as false and unwarranted any such charges . . . Regardless of obstacles beyond our control, we as patriotic and loyal employes, will continue to do our part to supply the material so urgently needed to win the war."

"The results of the situation at the Lockland plant of the Wright Aeronautical Corp. . . . have been much less sensational than some of the inferences drawn", Patterson declared.

He said: "Over three months ago vigorous remedial action was taken by the Army Air Forces . . . Investigation showed that there had been a falling off in inspection procedures. Changes in the contractor's personnel and methods were promptly made. The officer serving as resident representative was forthwith removed, as was also the officer in charge of the inspection section at Wright Field . . . The Army always requires that each engine produced be run for several hours prior to acceptance. This constitutes the best assurance of proper functioning and quality of the finished product. The time for engine test runs at Lockland was lengthened and other important steps of a technical nature were taken. The AAF, which are more concerned than anyone else in maintaining the highest quality in their equipment, can be counted on to continue their vigilant efforts to obtain the best and safest aircraft that can be produced.

"The Truman report told only half the truth about our Marauders, and the worse half at that . . . (and) its statements about the A-30 'Baltimore' and the Mars are completely without foundation and are utterly wrong", Glenn L. Martin asserted in his press statement.

Martin said: "How the Committee can call virtually worthless the most efficient airplane in its day is beyond me. Had the Committee examined the real facts, it would have found that the only trouble we have had with the Mars is in its engines, which are government-furnished equipment. Today this great airplane is beached waiting for new engines to replace defective ones.

"It is a matter of public record that the Navy contemplates purchasing a considerable number of these airplanes. It is a matter of engineering record that the Mars has been an outstanding craft from the start. In 85 hours of flying it has proven that it can carry more weight for greater distances than any other airplane in existence and that it is the most efficient aircraft per pound of material, per horsepower and per gallon of fuel yet known . . .

"In addition, the report falls far short of telling the true facts about the Martin B-26 and the A-30 . . .

"The Martin B-26, 'Marauder', has had a splendid combat record, one of the best of any type of bomber both in destruction of enemy ships, property, and personnel, and in the shooitng down of enemy aircraft. That the Marauder is a high performance airplane, safe in the hands of the experienced pilots, has been readily admitted. But the pilots who have flown it in combat have been unstinting in the praise and many have stated that they want to fly no other airplane.

"We have been told by returned combat crews that the real test of safety in a military airplane is its ability to bring its crew back from battle, and the B-26 is noted at the war fronts for this proclivity . . .

(Turn to next page)

Leading Aviation Stocks

New York Stock Exchange

	Week Ending July 17				Week Ending July 24			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
American Airlines	3,100	74¾	72¼	—2½	2,600	71¾	70	— ¾
Aviation Corp.	28,000	5⅜	5¼	— ⅜	28,800	5⅜	5	— ⅛
Bell Aircraft	4,100	16⅜	15¼	— ¾	4,200	16	15⅛	+ ¾
Bendix Aviation	10,900	38⅜	37	— ¼	6,000	37⅝	36½	— ½
Boeing Airplane	7,800	18¼	17½	— ⅛	8,700	17⅞	17⅛	+ ¼
Consolidated Vultee	8,000	18⅛	17⅛	— ⅝	9,100	17½	16⅝	— ⅛
Consolidated Vultee pfd.	3,300	25¼	24¼	— ¼	1,900	24⅜	23¼	—1¼
Curtiss-Wright	66,100	8¼	8	— ⅛	31,800	8⅛	8	+ ⅛
Curtiss-Wright A	4,800	22⅞	22	—1	6,400	22⅛	20⅛	— ⅛
Douglas Aircraft	3,700	66¼	64½	—1⅜	6,300	66¾	63⅛	+1⅛
Eastern Air Lines	2,900	43	41	—1¾	3,400	41⅝	39½	
Ex-Cell-O	3,000	26⅛	25⅝	+ ⅛	2,400	25½	25⅛	— ¼
Grumman Aircraft Eng.	6,100	16½	14¾	— ¼	3,700	14⅞	14	—1⅛
Hayes Industries	1,100	9	8¾	— ⅛	2,300	8¾	8⅛	— ¾
Lockheed Aircraft	10,900	21¼	20⅜	— ¼	10,600	20¾	19¾	— ⅜
National Aviation	3,400	13½	12½	— ⅜	1,200	12¾	12⅜	— ⅜
North American Aviation	12,100	11⅞	11½	+ ¼	11,300	12⅛	11¼	
Pan American Airways	33,500	40⅞	38⅜	—1½	17,900	40	38	—1½
Penn Central Airlines	12,200	19½	18¼	— ⅞	5,100	18½	17½	— ⅝
Sperry Corp.	10,600	30⅛	28½	+1	9,300	31	29	+1¾
Thompson Products	900	33	31¾	— ¼	1,300	32½	31⅞	+ ¾
Trans & Western Air	2,700	24⅝	24	— ¾	3,000	23⅞	22½	—1½
United Air Lines	15,600	31⅞	30½	— ½	11,200	31⅝	29⅞	— ¾
United Aircraft	11,400	37¾	35¾	—1⅝	12,700	36	34¾	— ⅝
United Aircraft pfd.	900	114	113	+2	1,800	114	112½	—1½
Wright Aero	4,000	97	96	—2	2,000	100	100	+3

New York Curb Exchange

	Week Ending July 17				Week Ending July 24			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
Aero Supply A	200	21½	21½	— ¼				
Aero Supply B	1,700	4¾	4½	— ⅛	3,900	4⅝	4¼	— ⅛
Air Associates	100	8	8		200	8	7¾	— ¼
Aircraft Accessories	8,100	4⅛	3⅝	+ ⅜	5,700	4⅛	3⅞	— ⅛
Aro Equipment	1,800	21⅞	21	+ ¼	900	21½	20½	— ¾
Beech Aircraft	7,900	15¼	14½	— ⅛	14,700	15½	14⅝	+ ⅜
Bellanca Aircraft	800	3½	3⅜	— ¼	200	3½	3⅜	+ ⅛
Breeze Corp.	1,600	11⅛	11	+ ⅛	900	11¼	11	
Brewster Aero	4,900	5⅜	4¾	— ⅜	3,200	5⅛	4⅝	+ ¼
Cessna Aircraft	1,300	10	9¾	— ¼	1,100	9⅝	9	— ⅝
Colonial Airlines	5,100	9¾	9	— ⅜	7,500	10⅛	9⅝	+ ½
Fairchild Aviation	2,100	9½	9⅛	+ ½	2,100	9½	9¼	— ⅛
Fairchild Eng. & Airplane	13,300	2⅞	2⅝	+ ¼	5,400	2⅞	2⅝	— ⅛
Irving Air Chute	900	10	9⅞	+ ⅛	700	10	9½	
Republic Aviation	2,800	4¼	4	— ¼	6,500	4⅛	3⅞	— ⅛
Ryan Aero	2,200	4½	4¼	+ ⅛	2,300	4⅝	4⅛	— ⅜
Solar Aircraft	3,500	4⅜	4	— ¼	2,700	4⅛	3⅞	— ⅛
United Aircraft pfd.	2,100	11⅝	11⅛	+ ¼	1,500	11⅝	10¾	— ¾
Western Air Lines	3,200	10⅞	10⅜		1,000	10½	10¼	— ¼

BENDIX AVIATION CORP., New York, N. Y. has leased a building in Paterson, N. J., which is 100 x 300 and contains 30,000 square feet. Term is reported to be "for the duration," and operations are said to start "within a few weeks."

SPARK PLUGS

Contractors to the United States Army, Navy and Coast Guard and Aircraft Engine Builders.

THE BG CORPORATION

136 W. 52nd Street New York

Martin Defends

(Continued from page 72)

"As to the A-30, it is strange that the Truman Committee concerns itself with this airplane at all. It has been and is being produced for the British Government and has been used only by the British Air Forces. It is built to meet British tactical requirements and is better known throughout the world as the British 'Baltimore'. This airplane has performed singularly valuable service in Africa and it figured largely in the Eighth Army's ultimate defeat of Rommel. It has been much in the news in the last few days in the attacks on Sicily and it is now revealed that these bombers struck the last heavy air blow at German forces on the African continent."

The telegram sent by Gates to Vaughan read: "Please give the following message to your employes. Concerning the recent Helldiver press story: This is to assure you that the Navy intends to continue its SB2C Helldiver program. The officials and workmen of Curtiss Columbus and the personnel of Naval Aviation are familiar with the production and service difficulties with this plane. Some of these problems are inherent in setting (up) a new production plant and producing a new type of plane in quantities. We are confident that with your help design difficulties will be overcome, that the Helldiver will live up to its original promise, that your production quotas will be met and that this plane will play an important part in the defeat of the Axis."

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Our staff of engineers specializes in solving complicated problems by means of simple computers that are easy to understand and operate. Mental calculations are reduced to a minimum.

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Canadian Vickers' Profit Reduced

Due to production changes "primarily," net profit of Canadian Vickers, Ltd., Montreal, Que., for the fiscal year ended Feb. 28, 1943, was down to $546,946.81, compared with $800,098.51 in the previous year.

This decline, says Vickers in annual report, was "due . . . to the change-over of production from cargo vessels to Twin Screw Frigates, and from one type of Aircraft to another . . . The latter, particularly, required an extensive period for the provision of jigs and in tooling up to the volume necessary to handle large production requirements of the type now being produced at the plant located at Cartierville, P.Q., which is a Government owned project."

Balance sheet as of Feb. 28, 1943, reveals total assets of $16,627,376, and current assets of $11,766,238.33, which includes accounts receivable (less Reserve), $4,039,942.36.

Aro Equipment Reports Sizeable Gain In Profi

Aro Equipment Corp., Bryan, O., [illegible] six months ended May 31, had profit $635,000, compared with $206,800 for [illegible] similar period in 1942.

Reserve of $1,905,210.89 was set as[illegible] for taxes and special reserve of $200,[illegible] for year end adjustments. Balance sh[illegible] shows total assets of $5,747,500.73, [illegible] current assets of $5,128,444.80, includi[illegible] cash, $2,895,087.49, and accounts rece[illegible] able (Net), $1,006,331.43. Current liabil[illegible] ties total $3,194,016.95, including accou[illegible] payable, $421,266.78. Surplus was $[illegible] 633,483.78.

American Aviation Corp. Gets Navy Plane Orde[illegible]

Disclosing that his company has pla[illegible] for making helicopters and amphibio[illegible] planes after the war, President R. [illegible] Webster of American Aviation Corp, Jamestown, N. Y. has announced that [illegible] new order has brought the firm's backl[illegible] to an estimated $17,000,000.

Webster said he hopes to better i[illegible] dustry records of getting into productio[illegible] within seven to nine months, declarin[illegible] that there was a possibility the first plan[illegible] would be produced in August. It is unde[illegible] stood orders have been placed wit[illegible] American by the U. S. Navy.

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Should be interested in future of air freight transportation, capable appraising current aircraft design for cargo ships and able to contribute practical ideas for sound development of efficient, coordinated air and ground handling service.

Reply stating age, draft status, qualifications and salary expectation. Headquarters New York City. Write Box 361, AMERICAN AVIATION, American Building, Washington, D. C.

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